



# Nairobi Municipality Kenya.

## ELEVENTH ANNUAL REPORT OF THE Medical Officer of Health. 1939



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NAIROBI.



MUNICIPALITY OF NAIROBI,  
Kenya Colony.

With the Compliments  
of  
The Medical Officer of Health.

Public Health Department,  
Town Hall,  
Nairobi,  
Kenya.








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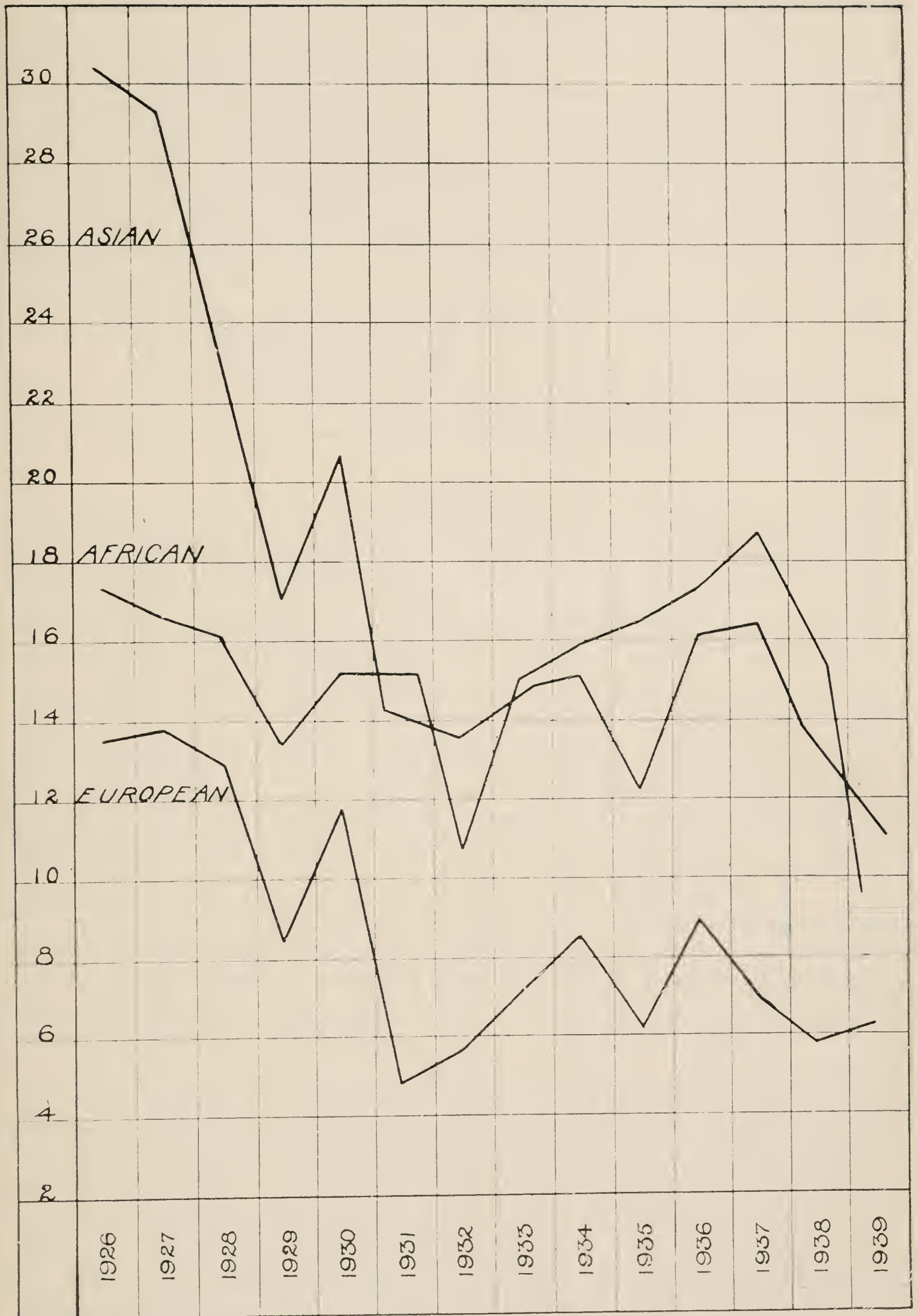
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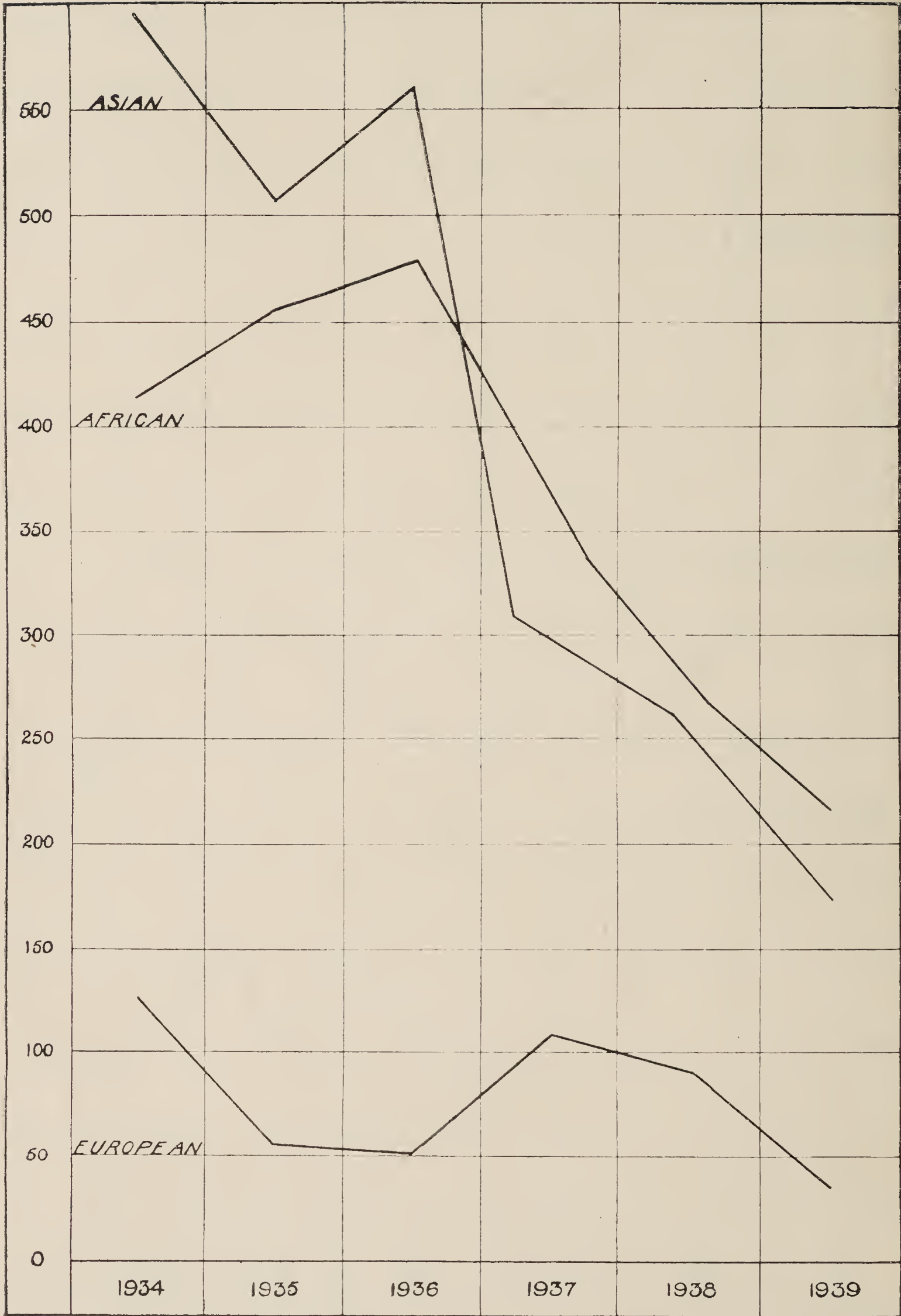
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# DEATH RATES.



INFANTILE MORTALITY RATES.





TOWN HALL,  
NAIROBI,  
February 28th, 1940.

Her Worship the Mayor and Councillors  
of the Municipal Council of Nairobi.

Your Worship and Gentlemen,

I have the honour to present to you herewith my annual report on the sanitary circumstances, sanitary administration, vital statistics, and other matters of a health nature, of the Municipality of Nairobi for the year 1939, as required by "The Local Government (Municipalities) Ordinance, 1928," "The Medical Officers of Health Rules, 1929, Sec. 2 (12) d."

I am, Your Worship and Gentlemen,  
Your obedient servant,

H. W. TILLING,

M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Lond.),  
*Medical Officer of Health.*

### 1. GENERAL.

The health of a town is commonly judged by its mortality rates, deductions being made after a study of the figures over a period of years, not too much importance being attached to unusual fluctuations in any one year, such variations being probably due to non-recurring circumstances.

The ideal to be aimed for is a gradual, steady and consistent decrease of the average, indicating improvement of a permanent nature.

The betterment of mortality rates, in other words the better health of the inhabitants, is not brought about by any one direct circumstance, but by a number which have indirect bearings upon health. These conditions are numerous and varied and have to be carried out with steady progress in order that permanent and not fleeting results may be indicated in the rates. Instances of these conditions affecting health are erection of new housing, demolition of insanitary dwellings, sewerage, drainage, removal and disposal of refuse and sewage, hard surfacing of roads to eliminate dust, control of water supply, inspection of food, health services, teaching of home hygiene, etc.

Whilst further improvements are undoubtedly necessary in many of these examples quoted, the Municipal Council has every reason to be satisfied with the steady and continuous progress made within the Municipality during the year in matters directly or indirectly relating to health, as is evidenced by figures contained in this report.

The Local Government (Municipalities) Ordinance came into force as from 1929, thus this is the eleventh year that the Municipal Council has been the public health authority for the Municipality of Nairobi.

The offices of the Public Health Department are situated in the Town Hall. No new legislation of a health nature has been passed during the year.

Although minor sickness has been prevalent, 1939 from the standpoint of mortality rates has been a good year.

Once again Nairobi experienced a poor rainfall, only 24.46 inches being registered, equivalent to 69% of the average over 32 years.

Except for 1937, when the rainfall was over 50 inches, the annual rainfall from 1935 has been below the average.

The average monthly fall during the year amounted to 2.03 compared with the average of 2.94 inches.

The longest periods without rain were 22 days during October, 21 days in June, and 19 days in July.

The population of Nairobi is now estimated at 65,500, being an increase of 500 over last year. The disturbance due to war conditions caused large fluctuations especially towards the end of the year, many Asians leaving the country and many Africans temporarily leaving for their reserves.

The number of births notified was somewhat less than last year, 1,392 against 1,436, the decrease mainly affecting African residents.

The birth rate for Asians increased slightly from 24.9 to 27.1, whilst the European rate decreased from 13.3 to 12.5 and the African rate decreased from 12.0 to 10.0.

The natural increase for the European community amounted to 6.1 per 1,000 persons, for the Asian community 16.1, and for Africans 0.5 persons. This is the first occasion that births have exceeded deaths among Africans.

The natural increase for all races of 5.3 per thousand persons shows a considerable increase over the figure of 1.8 for last year.

The incidence of stillbirths was higher than last year among residents—4.4% compared with 3.5% and among non-residents 10.5% compared with 5.6%, the difference in the figures for residents and non-residents being even more marked than in 1938.

There were nearly 300 fewer deaths among residents in 1939 than last year. This considerable decrease in deaths is largely accounted for by fewer deaths from the pneumonias, only 165 being recorded compared with 365 last year. As this disease is not notifiable it is impossible to say definitely whether the low figure is due to the incidence or the mortality rate being lessened, in all probability the latter is the correct explanation, due to modern treatment. This reasoning is borne out by the percentage of pneumonia deaths to total deaths being reduced from 40.0% to 26.3% and also by the death rate for this disease decreasing from 5.5 per 1,000 persons to 2.5.

The death rate improved from 13.93 to 9.56. The Asian death rate decreased from 13.94 to 11.01 and the African rate decreased from 15.37 to 9.48 whilst the rate for Europeans increased slightly from 5.84 to 6.32.

The average of the death rate for all races over ten years now stands at 13.9.

A graph showing the death rates for 14 years is included in the report.

It is gratifying to be able to record a further continued decrease in the infant mortality rate.

The infant mortality rate for all races during the year amounted to 180 per thousand births compared with 249 during last year. The rates for all the communities shared in the decrease, the European by 55, the Asian by 87 and the African by 58. A graph showing the infant mortality rates for the past six years is included in the report.

Excluding malaria, the number of notifications of infectious diseases totalled 194 which compares favourably with the totals for previous years of 215, 179, and 176. Increases are noted for typhoid fever and diphtheria whilst there were fewer notifications in connection with tuberculosis, cerebrospinal meningitis and relapsing fever. Noteworthy were notifications of Encephalitis lethargica, acute anterior poliomyelitis, and Malta fever.

The non-notifiable conditions, chickenpox, measles, mumps, and whooping cough have been present during the year, but with the exception of measles and mumps have not been so prevalent as last year.

Admissions to hospital on account of infectious and communicable diseases were the same as last year but the total patient days were somewhat less, 7,883 against 8,043. Decreases were registered for cerebrospinal meningitis, chickenpox, relapsing fever, typhus, tuberculosis, and whooping cough, while the



patient days for typhoid fever, mumps, measles, leprosy, and diphtheria were increased.

No human plague occurred within the Municipality during 1939.

Details of malaria control will be found in the report.

The incidence rate for malaria during the year was 7.71 per thousand persons showing a reduction on that for the previous year.

The mortality rate for the cases notified of this disease was lower than in 1938, the figure being 2.9% against 3.3%. The death rate from malaria was the lowest yet recorded, namely 0.24; the past four years have shown a continuous diminution of this rate.

The total number of rats destroyed within the commercial area of the Municipality totalled 38,668. There is evidence that there are fewer rats in those areas improved under Town Planning Schemes. Although a percentage of the rats killed is examined, none were found positive to *B. pestis*.

It is estimated that there are 241 miles of roads within the Municipality; of this 148 miles are private streets mostly unimproved and non surfaced. Of the remaining 93 miles of roads, 74 miles are hard surfaced. The lengths of roads surfaced during the year totalled 13.7 miles.

The burial ground situated off the road to the civil aerodrome has been in regular use and still proves satisfactory, 534 interments taking place. The fenced area will have to be extended during the coming year.

The ambulance service which was instituted during last year has proved of great value. The ambulance was called out on 92 occasions and travelled 723 miles.

The average daily consumption of water in Nairobi was 22.4 gallons per head of population, the daily consumption being 1,466,412 gallons compared with 1,292,543 gallons for 1938.

Since March the filtration plant has been working satisfactorily, all four filters being now in use.

Weekly bacteriological examinations of the water are made by the Public Health Department; these prove the quality to be satisfactory, coliform type bacilli are constantly absent in less than 100 m.l.

Work in connection with the scrutiny of building plans and inspections of works in progress has again been considerable, 2,888 inspections being carried out in connection with 506 plans.

The sanitation of the town in regard to sewerage has continued to progress, no less than 13,415 feet of sewers being constructed. The sewerage outfall works situated at Eastleigh have been completed and further filter beds are being built; these works deal with an average of 360,000 gallons of crude sewage a day.

The method of collection of night soil by the single bucket system still prevails. It is recommended that the institution of a double bucket system should be seriously considered.

The daily number of night soil buckets conserved totalled 3,524 compared with 3,469 conserved last year.

There are now 2,017 water closets in use connected to the sewer and a total of 677 septic tanks together with 21 conserving tanks.

In spite of the large amount of time taken by sanitary inspectors in carrying out A.R.P. duties, 9,393 premises were inspected, 1,192 defects were remedied and 418 notices were served.

A very large amount of time indeed has been expended by the Department in connection with A.R.P. work. Eight first aid centres and a decontamination centre have been established, equipped, and staffed.

A total of 77,737 animals were slaughtered at the Abattoir compared with 62,914 last year, an increase of 14,823 animals.

The volume of work has now reached the extent that present accommodation is not sufficient and a scheme for extension is being prepared.

The condemnation rate for oxen for all causes was less than last year, 16.2% against 18.5%. The measles rate was also lower, being 14.2% compared with 16.7%.

28% more goats and 25% more pigs were slaughtered than in 1938; there was also an increase in the number of sheep killed.

A report on Child Welfare services is included in this report. It will be noted that attendances at the Infant Clinics increased to 40,734 and those at the Ante-Natal Clinics increased to 6,196. Home visits reached a total of 19,480, being an increase of 2,267, but attendances at the Venereal Clinics and Dispensaries showed a decrease accounted for by the movements of Africans, due to war disturbance.

There was no alteration in the personnel of the Public Health Department during the year.

The post of Chief Sanitary Inspector still has not been filled in spite of it being vacant since 1931.

The annual expenditure of the Public Health Department during 1939 amounted to £12,570 compared with £10,883 in 1938.

## 2. GEOGRAPHICAL.

Nairobi, the capital of Kenya, is situated in the highlands about 250 miles from the coast and is 330 miles by rail from the port of Mombasa, and 257 miles by rail from Kisumu on Lake Victoria.

The geographical position is:—

Latitude: 1° 16' 43" South.

Longitude: 36° 50' East.

Height above sea level: From 5,452 feet to 5,700 feet.

Area of Municipality: 20,544 acres or 32.1 square miles.

## 3. METEOROLOGICAL.

The following meteorological observations were made by the British East African Meteorological Service. The observations regarding pressure were taken at Kabete Observatory at 5,987 feet, and those relating to temperature and humidity were taken near the Railway Offices at 5,495 feet above sea level.

Month.	Atmospheric pressure corrected.	Relative humidity.	TEMPERATURE.				
			Max.	Mean max.	Min.	Mean min.	Mean.
	ins.	%	°F.	°F.	°F.	°F.	°F.
January	... 24.204	... 58	... 84.1	79.1	50.2	55.7	67.4
February	... 24.182	... 54	... 85.9	82.9	51.0	56.8	69.9
March	... 24.165	... 60	... 86.1	83.1	52.7	58.3	70.7
April	... 24.216	... 71	... 83.0	78.2	55.4	59.3	68.7
May	... 24.245	... 71	... 79.1	75.7	50.0	57.9	66.8
June	... 24.272	... 66	... 79.2	74.0	49.9	55.1	64.5
July	... 24.263	... 66	... 81.8	75.2	44.1	53.6	64.4
August	... 24.273	... 68	... 83.0	75.1	47.0	54.3	64.7
September	... 24.257	... 57	... 85.7	80.1	48.0	54.9	67.5
October	... 24.233	... 55	... 84.2	81.1	50.0	56.7	68.9
November	... 24.237	... 61	... 83.3	79.4	53.1	59.5	69.5
December	... 24.262	... 57	... 85.8	81.2	53.9	58.3	69.7
Year	... 24.234	... 62	... 86.1	78.8	44.1	56.7	67.7



#### 4. RAINFALL.

The following rainfall records are from the Hill Station situated in the Southern portion of the town at 5,700 feet above sea level.

Month.	RAINFALL.				DAYS OF RAIN.			
	1939.	Average 32 years.			1939.	Average 32 years.		
January ... ..	0.88	...	1.48	...	7	...	5	
February ... ..	1.72	...	2.28	...	4	...	5	
March ... ..	5.37	...	4.70	...	9	...	10	
April ... ..	9.32	...	7.93	...	18	...	18	
May ... ..	1.45	...	5.01	...	11	...	15	
June ... ..	0.32	...	1.73	...	4	...	8	
July ... ..	0.90	...	0.66	...	3	...	5	
August ... ..	1.39	...	0.99	...	8	...	6	
September ... ..	0.68	...	1.10	...	6	...	6	
October ... ..	0.26	...	2.13	...	2	...	8	
November ... ..	2.02	...	4.63	...	11	...	15	
December ... ..	0.15	...	2.73	...	4	...	10	
Annual ... ..	24.46	...	35.37	...	87	...	111	

Nairobi registered a poor rainfall during 1939, only 24.46 inches being recorded. During the previous year the rainfall was also poor. In 1937 it was almost 50% above the average but for four years prior to this each year recorded a rainfall below the average.

March, April, July, and August were the only months with rainfalls exceeding the average.

The falls during May and December constitute a second lowest record and that for October the third lowest record.

The average monthly rainfall for the year was 2.03 compared with the average over 32 years of 2.94 inches.

The days of rain totalled 87 compared with an average of 111, whilst the average fall of rain per rainy day amounted to 0.28 inches, compared with an average of 0.31 inches.

#### SEASONAL RAINFALL.

Season.	1939.	Average 32 years.
Short dry season (January-February) ...	2.60	3.76
Long rains (March, April, May) ... ..	16.14	17.64
Long dry season (June-September) ...	3.29	4.48
Short rains (October, November, December)	2.43	9.49
Annual ... ..	24.46	35.37

It will be noted that all the seasons were below the average, to the extent of 30%, 8%, 26%, and 74% respectively.

#### DAYS WITHOUT RAIN.

Days without rain.	Number of occasions.	Month.
22	1	October
21	1	June
19	1	July
17	1	January-February
15	2	February, August
13	1	September-October
12	1	November-December
11	2	December (2)

Less than 10 days without rain was recorded on 31 occasions, the average being 4.5 days.



## ANNUAL RAINFALL.

Year.	Inches.	Year.	Inches.	Year.	Inches.
1897	... 27.5	1911	... 41.49	1925	... 27.83
1898	... 28.1	1912	... 56.01	1926	... 33.25
1899	... 27.5	1913	... 31.04	1927	... 24.86
1900	... 44.3	1914	... 42.18	1928	... 28.91
1901	... 40.7	1915	... 28.88	1929	... 36.50
1902	... 32.9	1916	... 43.59	1930	... 58.88
1903	... 40.7	1917	... 51.44	1931	... 39.58
1904	... 26.9	1918	... 23.05	1932	... 39.85
1905	... 59.3	1919	... 38.74	1933	... 22.68
1906	... 46.7	1920	... 51.19	1934	... 23.12
1907	... 41.98	1921	... 18.49	1935	... 31.24
1908	... 27.90	1922	... 37.28	1936	... 30.87
1909	... 29.02	1923	... 56.22	1937	... 52.85
1910	... 25.64	1924	... 26.72	1938	... 28.16
				1939	... 24.46

Records for the years 1897 to 1906 are relatively accurate only.

## 5. POPULATION.

Race.	Population.
European ... ..	6,800
Asian ... ..	17,700
African and others ... ..	41,000
TOTAL ... ..	65,500

The population of Nairobi as at December 31st, 1939, has been estimated at 65,500, compared with 65,000 for the previous year.

Europeans are estimated to have increased by 300 and Africans by 1,000, whilst the Asian community is estimated to have decreased by 800.

Owing to the disturbance due to war conditions, there were large fluctuations towards the end of the year, especially in regard to Asians leaving the country and to Africans temporarily leaving the town for their reserves.

## 6. MARRIAGES.

The following marriages were celebrated in Nairobi during 1939. The figures are not corrected for persons habitually resident in Nairobi.

British	... ..	110
French	... ..	2
Swedish	... ..	2
Danish	... ..	1
Swiss	... ..	1
Norwegian	... ..	1
Dutch	... ..	1
Polish	... ..	1
Czechoslovakian	... ..	1
German	... ..	15
Indian	... ..	3
Goan	... ..	8
Seychellois	... ..	3

## 7. BIRTHS.

"The Nairobi Municipality (Notification of Birth) By-Laws, 1933," which require the births of all races to be notified, has been in operation for six years, and the following are particulars obtained from these notifications during 1939.

### NOTIFICATION OF BIRTHS.

Race.	RESIDENT.		NON-RESIDENT.		TOTAL.	
	Number.	Stillbirths.	Number.	Stillbirths.	Births.	Stillbirths.
<b>EUROPEAN :</b>						
British ... ..	75	—	43	1	118	1
French ... ..	1	—	—	—	1	—
Dutch ... ..	1	—	—	—	1	—
Swedish ... ..	—	—	1	—	1	—
Danish ... ..	—	—	1	—	1	—
Norwegian ... ..	1	—	—	—	1	—
Polish ... ..	1	—	—	—	1	—
Czechoslovakian	2	—	—	—	2	—
German ... ..	4	85	—	0	1	5
			1	46	131	1
<b>ASIAN :</b>						
Indian ... ..	429	17	28	—	457	17
Goan ... ..	67	—	5	—	72	—
Cingalese ... ..	1	497	—	33	1	530
			17	—	17	17
<b>AFRICAN AND OTHER :</b>						
African ... ..	433	28	286	38	719	66
Nubian ... ..	—	—	3	—	3	—
Arab ... ..	2	—	—	—	2	—
Seychellois ... ..	5	440	—	28	7	731
			2	291	38	66
<b>TOTAL ...</b>	<b>1022</b>	<b>45</b>	<b>370</b>	<b>39</b>	<b>1392</b>	<b>84</b>

### MULTIPLE BIRTHS.

Among residents, twins were recorded in ten instances, one being European with two males, six being Indian; in four instances the sex was both females, once both males and once the sex was divided. Three cases of twins were African including once both males, once both females, and once divided sexes.

Among non-residents, multiple births were recorded in six instances, one case of European triplets, the sex being all males, one case of Seychellois twins, the sex being both females, and the remaining four instances concerned Africans, twice the sex was both females, once both males, and once the sex was divided.

### BIRTH RATES AND NATURAL INCREASE.

			No. of	Crude	Live	True	No. of	Natural	Rate
			births.	birth	births.	birth	deaths.	increase.	per 1,000
				rate.		rate.			popu-
									lation.
European ... ..	85	12.5	85	12.5	43	42	6.1		
Asian ... ..	497	28.0	480	27.1	195	285	16.1		
African and others ...	440	10.7	412	10.0	389	23	0.5		
<b>All races ... ..</b>	<b>1022</b>	<b>15.5</b>	<b>977</b>	<b>14.9</b>	<b>627</b>	<b>350</b>	<b>5.3</b>		

The above table indicates the birth rates for the races together with the natural increase.

It will be noted that the birth rate for all races is 14.9 compared with 15.7, 14.6, and 15.7 respectively for the three previous years.

It is of interest to note that the birth rate for England and Wales for 1938 was 15.1. For urban British India during the first quarter of 1939 the birth rate was 24.7. No comparable figure can be obtained for Africans.

The natural increase for Europeans works out at 6.1 per 1,000 persons, for Asians at 16.1 per 1,000 persons, and for Africans at 0.5 per 1,000 persons. It should be noted that this is the first occasion that the births have exceeded the deaths among Africans.

The natural increase for all races of 5.3 per thousand persons shows a marked increase over last year's figure of 1.80.

#### STILLBIRTHS.

The following table gives figures relating to the incidence of stillbirths. As in former years a considerable difference between the figures for residents and non-residents is noted.

#### STILLBIRTHS.

Race.	RESIDENT.			NON-RESIDENT.		
	Births.	Still-births.	Percentage to births.	Births.	Still-births.	Percentage to births.
European ... ..	85	—	0.0%	46	1	2.1%
Asian ... ..	497	17	3.4%	33	—	0.0%
African and others ...	440	28	6.3%	291	38	13.0%

### 8. DEATHS.

Unless otherwise stated the following statistics refer to residents of Nairobi, including the prison population and Mathari Hospital. Figures have been corrected for outward but not for inward transfers.

Rates have been calculated on the estimated population for 1939. The total number of deaths reported in Nairobi during the year was 1,005, equivalent to a crude death rate for all races of 15.33 per thousand persons, compared with a rate of 19.96 for 1938.

The number of deaths from all causes among persons stated to be normally resident in Nairobi was 627, equivalent to a recorded death rate for all races of 9.56 per thousand persons compared with 13.93 for 1938.

Of the 627 deaths among residents, 416 were of males and 211 of females.

177 or 28.2% of the deaths were of infants under one year of age.

43 deaths occurred among Europeans, 30 being males and 13 females, equivalent to a rate of 6.32 per thousand persons of that race.

195 deaths occurred among the Asian community, 102 being males and 93 females, equivalent to a rate of 11.01 per thousand persons of that race.

389 deaths occurred among Africans and other races, 284 being males and 105 females, equivalent to a rate of 9.48 per thousand persons.

#### DEATHS BY RACE AND SEX.

1939.	White.	Indian.	Goan.	African.	Somali.	Arab.	Nubian.	Seychellois.	Abyssinian.	Japanese.	Total.
RESIDENT :											
M. ...	30	94	8	275	5	2	—	2	—	—	416
F. ...	13	87	6	101	1	—	—	2	—	1	211
Total ..	43	181	14	376	6	2	—	4	—	1	627
NON-RESIDENT :											
M. ...	7	6	—	213	1	—	—	—	1	—	228
F. ...	1	4	—	144	—	—	1	—	—	—	150
Total ..	8	10	—	357	1	—	1	—	1	—	378
TOTAL ...	51	191	14	733	7	2	1	4	1	1	1005



## COMPARISON OF DEATH RATES FOR RACES.

		European.		Asiatic.		Native.		All Races.
1926	...	13.5	...	30.3	...	17.3	...	20.5
1927	...	13.8	...	29.2	...	16.5	...	18.9
1928	...	12.8	...	23.3	...	16.1	...	17.9
1929	...	8.4	...	17.0	...	13.4	...	13.7
1930	...	11.8	...	20.7	...	15.2	...	16.2
1931	...	4.7	...	14.3	...	15.2	...	13.7
1932	...	5.6	...	13.5	...	10.7	...	11.0
1933	...	7.1	...	14.8	...	15.0	...	14.0
1934	...	8.5	...	15.1	...	15.9	...	14.8
1935	...	6.1	...	12.2	...	16.4	...	13.9
1936	...	8.9	...	16.1	...	17.3	...	15.9
1937	...	6.9	...	16.4	...	18.7	...	16.9
1938	...	5.8	...	13.9	...	15.3	...	13.9
1939	...	6.3	...	11.0	...	9.4	...	9.5

## AVERAGE DEATH RATES.

Race.			10 years' average 1930-39.		5 years' average 1930-34.		5 years' average 1935-39.		1939.
European	...	...	7.1	...	7.5	...	6.8	...	6.3
Asiatic	...	...	14.8	...	15.6	...	13.9	...	11.0
Native	...	...	14.9	...	14.4	...	15.4	...	9.4
All races	...	...	13.9	...	13.9	...	14.0	...	9.5

It is noted that the European death rate, although 0.5 higher than last year, is still low, and below the 10 years average, and also below the second 5 years average.

The steady decline in the Asian death rate has been maintained. The present rate of 11.0 is the lowest on record, showing a decrease of 2.9 compared with the previous year.

The death rate for Africans continues to decline in a very satisfactory manner; the rate for 1939 of 9.4 is the lowest on record and 5.9 below that for the previous year.

## MONTHLY INCIDENCE OF DEATHS BY RACE.

		White.	Indian.	Goan.	African.	Somali.	Arab.	Seychel- lois.	Japanese.	Total.
January	...	5	15	1	39	2	—	—	—	62
February	...	5	12	1	26	—	1	—	—	45
March	...	2	13	1	29	—	—	—	—	45
April	...	2	12	—	21	1	—	1	—	37
May	...	3	16	1	32	1	—	—	—	53
June	...	4	18	4	40	—	—	1	—	67
July	...	4	17	1	42	1	—	—	—	65
August	...	2	16	—	41	—	—	—	—	59
September	...	6	13	1	29	—	—	1	—	50
October	...	6	10	2	24	—	1	—	1	44
November	...	3	20	2	23	—	—	—	—	48
December	...	1	19	—	30	1	—	1	—	52
TOTAL	...	43	181	14	376	6	2	4	1	627

## DEATHS BY QUARTERS.

	No. of deaths.	Percentage of total.
First quarter ...	152	24.2%
Second quarter ...	157	25.0%
Third quarter ...	174	27.8%
Fourth quarter ...	144	23.0%
TOTAL ...	627	100.0%

The most deaths occurred in June (67), July (65), and January (62), and the fewest in October (44), March (45), and February (45).

## CAUSES OF DEATHS BY GROUP AND RATE PER 1,000 PERSONS.

International cause of death.	Number.	Percentage of total.	Rate per 1,000 population.
1. Infectious and parasitic diseases ...	115	18.34	1.756
2. Cancer and other tumours ...	11	1.75	0.168
3. Rheumatism, diseases of nutrition, etc. ...	9	1.43	0.137
4. Diseases of the blood and blood-forming organs ...	4	0.64	0.061
5. Chronic poisoning ...	—	—	—
6. Diseases of the nervous system ...	27	4.31	0.412
7. Diseases of the circulatory system ...	27	4.31	0.412
8. Diseases of the respiratory system ...	181	28.87	2.762
9. Diseases of the digestive system ...	65	10.37	0.992
10. Non-venereal diseases of the genito-urinary system ...	30	4.78	0.458
11. Diseases of pregnancy, child-birth, and the puerperal state ...	7	1.12	0.107
12. Diseases of the skin ...	3	0.48	0.046
13. Diseases of the bones ...	1	0.16	0.015
14. Congenital malformations ...	5	0.80	0.076
15. Diseases of early infancy ...	60	9.57	0.915
16. Old age ...	3	0.48	0.046
17. Deaths from violence ...	48	7.65	0.732
18. Ill-defined diseases ...	31	4.94	0.473
TOTAL ...	627	100.00	9.568

As a later list of international causes of death has been used to that employed in former reports, no comparison can be made of the incidence in the various groups, but brief remarks will be made concerning the more prominent diseases.

Figures in brackets refer to the return for 1938.

Diseases of the respiratory system again claim the greatest number of victims, although the deaths under this heading decreased from 387 to 181; this was largely caused by deaths from the pneumonias decreasing from 365 to 165. As pneumonia is not notifiable, it is not possible to say whether the incidence was less or the favourable figure was the result of a lessened mortality rate. In all probability, the latter, due to modern treatment, is the correct explanation.

The next most prolific cause of death was diarrhoea with a total of 42, a slightly higher figure than in the previous year (39).

Diseases of early infancy showed a satisfactory decline from 90 to 60 largely as a result, it is assumed, of the activities of the Welfare Clinics.

Diseases of the circulatory system showed an increase from 17 to 27 deaths.

Diseases of pregnancy recorded a satisfactory decline from 9 to 7 deaths.

Fatal road accidents declined from 21 to 13.

Deaths under the heading of ill-defined diseases totalled 31 compared with 47 in 1938.



Deaths from cancer and other tumours during the year increased notably from 2 to 11. Six of these cases concerned Europeans, which brings the death rate for this condition to 0.88 per thousand persons of this race.

Meningitis and cerebral haemorrhage claimed half the number of victims compared with 1938, the figures being 11 (22) and 7 (14) respectively.

There were 32 deaths from all types of tuberculosis compared with a similar number last year.

Nephritis recorded an increase in deaths from 18 to 27.

### CAUSES OF DEATHS.

International causes of deaths.				White.	Indian.	Goan.	African.	Somali.	Arab.	Seychellois.	Japanese.	Total.
GROUP I. INFECTIOUS AND PARASITIC DISEASES.												
1.	Typhoid fever	...	...	—	—	—	12	—	—	—	—	12
7.	Measles	...	...	—	—	—	1	—	—	—	—	1
9.	Whooping cough	...	...	—	2	—	1	—	—	—	—	3
10.	Diphtheria	...	...	—	3	1	1	—	—	—	—	5
11.	Influenza	...	...	—	4	—	3	—	—	—	—	7
13.	Dysentery	...	...	—	3	—	6	—	—	—	—	9
17.	Encephalitis lethargica	...	...	—	1	—	—	—	—	—	—	1
18.	Cerebrospinal meningitis	...	...	—	2	—	8	—	—	—	—	10
20.	Anthrax	...	...	—	—	—	1	—	—	—	—	1
22.	Tetanus	...	...	—	—	—	3	—	—	—	—	3
23.	Pulmonary tuberculosis	...	...	—	2	1	24	—	—	—	—	27
24.	Tuberculous meningitis	...	...	—	—	—	2	—	—	—	—	2
25.	Tuberculous peritonitis	...	...	—	—	—	1	—	—	—	—	1
27.	Tuberculous hip	...	...	—	1	—	1	—	—	—	—	2
34.	Syphilis	...	...	—	—	—	7	—	—	—	—	7
36.	Septicaemia	...	...	—	4	—	1	—	1	—	—	6
38.	Malaria	...	...	1	3	—	12	—	—	—	—	16
39.	Yaws	...	...	—	—	—	1	—	—	—	—	1
41.	Hydatid of liver	...	...	—	—	—	1	—	—	—	—	1
GROUP II. CANCER AND OTHER TUMOURS.												
46.	Cancer of liver	...	...	1	—	—	—	—	—	—	—	1
	Cancer of stomach	...	...	—	—	—	1	—	—	—	—	1
	Cancer of oesophagus	...	...	—	—	1	—	—	—	—	—	1
	Cancer of pancreas	...	...	1	—	1	—	—	—	—	—	2
48.	Cancer of uterus	...	...	3	—	—	1	—	—	—	—	4
50.	Cancer of breast	...	...	—	—	—	—	—	—	1	—	1
54.	Lymphadenoma	...	...	1	—	—	—	—	—	—	—	1
GROUP III. RHEUMATISM, DISEASES OF NUTRITION, AND OTHER GENERAL DISEASES.												
56.	Rheumatic fever	...	...	—	1	—	—	—	—	—	—	1
59.	Diabetes	...	...	1	2	—	—	—	—	—	—	3
60.	Kikuyu disease	...	...	—	—	—	4	—	—	—	—	4
63.	Rickets	...	...	—	1	—	—	—	—	—	—	1
GROUP IV. DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS.												
71.	Anaemia	...	...	—	2	—	—	—	—	—	—	2
72.	Leukaemia	...	...	—	1	—	1	—	—	—	—	2
GROUP V. CHRONIC POISONING.												
GROUP VI. DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.												
78.	Cerebral abscess	...	...	—	2	—	1	—	—	—	—	3
79.	Meningitis	...	...	—	1	—	9	—	1	—	—	11
82.	Cerebral haemorrhage	...	...	5	—	—	2	—	—	—	—	7
83.	General paralysis of insane	...	...	—	—	—	1	—	—	—	—	1
84.	Insanity	...	...	—	—	—	1	—	—	—	—	1
86.	Convulsions	...	...	1	1	—	1	—	—	—	—	3
89.	Mastoiditis	...	...	—	—	—	1	—	—	—	—	1

## CAUSES OF DEATHS (Continued).

International causes of deaths.				White.	Indian.	Goan.	African.	Somali.	Arab.	Seychellois.	Japanese.	Total.
GROUP VII. DISEASES OF THE CIRCULATORY SYSTEM.												
90.	Pericarditis	...	...	—	—	—	1	—	—	—	—	1
91.	Endocarditis	...	...	1	2	—	3	—	—	—	—	6
92.	Heart disease	...	...	6	1	1	4	—	—	—	—	12
94.	Angina pectoris	...	...	1	1	—	—	—	—	—	—	2
96.	Aneurysm	...	...	1	—	—	2	—	—	—	—	3
102.	Hyperpiesis	...	...	2	—	—	—	—	—	—	—	2
103.	Haemorrhage	...	...	—	—	—	1	—	—	—	—	1
GROUP VIII. DISEASES OF THE RESPIRATORY SYSTEM.												
105.	Laryngeal obstruction	...	...	—	—	—	1	—	—	—	—	1
106.	Bronchitis	...	...	2	1	—	3	—	—	—	—	6
107.	Broncho-pneumonia	...	...	—	14	2	39	—	—	—	—	55
108.	Pneumonia	...	...	2	22	—	83	3	—	—	—	110
110.	Pleurisy	...	...	—	—	—	2	—	—	—	—	2
111.	Congestion of lungs	...	...	—	—	—	2	—	—	—	—	2
112.	Asthma	...	...	—	1	—	1	—	—	—	1	3
113.	Emphysema	...	...	—	1	—	—	—	—	—	—	1
114.	Abscess of lung	...	...	—	1	—	—	—	—	—	—	1
GROUP IX. DISEASES OF THE DIGESTIVE SYSTEM.												
115.	Cellulitis of neck	...	...	—	—	—	1	—	—	—	—	1
	Tonsillitis	...	...	—	1	—	1	—	—	—	—	2
118.	Gastritis	...	...	—	1	—	—	—	—	—	—	1
119.	Diarrhoea (under two)	...	...	—	17	—	15	2	—	1	—	35
120.	Diarrhoea (over two)	...	...	—	—	—	7	—	—	—	—	7
121.	Appendicitis	...	...	2	1	—	—	—	—	—	—	3
122.	Intestinal obstruction	...	...	—	1	—	4	—	—	—	—	5
123.	Intestinal haemorrhage	...	...	—	—	—	2	—	—	—	—	2
125.	Jaundice	...	...	—	—	—	2	1	—	—	—	3
128.	Pancreatitis	...	...	1	—	—	—	—	—	—	—	1
129.	Peritonitis	...	...	—	1	—	4	—	—	—	—	5
GROUP X. NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.												
130.	Acute nephritis	...	...	2	2	—	2	—	—	—	—	6
131.	Chronic nephritis	...	...	2	10	—	9	—	—	—	—	21
135.	Vesico-vaginal fistula	...	...	—	—	—	1	—	—	—	—	1
136.	Urethral stricture	...	...	—	—	—	1	—	—	—	—	1
139.	Pyosalpingitis	...	...	—	—	—	1	—	—	—	—	1
GROUP XI. DISEASES OF PREGNANCY, CHILDBIRTH, AND THE PUERPERAL STATE.												
144.	Puerperal haemorrhage	...	...	—	1	—	—	—	—	—	—	1
145.	Puerperal sepsis	...	...	—	1	—	1	—	—	—	—	2
146.	Eclampsia	...	...	—	2	1	—	—	—	—	—	3
149.	Obstructed labour	...	...	—	—	1	—	—	—	—	—	1
GROUP XII. DISEASES OF THE SKIN AND CELLULAR TISSUE.												
152.	Cellulitis	...	...	—	1	—	2	—	—	—	—	3
GROUP XIII. DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.												
154.	Periostitis	...	...	—	—	—	1	—	—	—	—	1
GROUP XIV. CONGENITAL MALFORMATIONS.												
157.	Hydrocephalus	...	...	—	2	—	—	—	—	—	—	2
	Monstrosity	...	...	1	—	—	—	—	—	—	—	1
	Meningocele	...	...	—	1	—	—	—	—	—	—	1
	Cleft palate	...	...	—	1	—	—	—	—	—	—	1
GROUP XV. DISEASES OF EARLY INFANCY.												
158.	Congenital debility	...	...	1	22	2	8	—	—	—	—	33
159.	Prematurity	...	...	—	11	1	9	—	—	—	—	21
161.	Pulmonary collapse	...	...	1	1	—	—	—	—	—	—	2
	Haematemesis	...	...	—	1	—	—	—	—	—	—	1
	Asphyxia neonatorum	...	...	—	2	—	—	—	—	—	—	2
	Cellulitis	...	...	—	1	—	—	—	—	—	—	1

## CAUSES OF DEATHS (Continued).

International causes of deaths.				White.	Indian.	Goan.	African.	Somali.	Arab.	Seychellois.	Japanese.	Total.
GROUP XVI. OLD AGE.												
162.	Senility	...	...	—	2	—	1	—	—	—	—	3
GROUP XVII. DEATHS FROM VIOLENCE.												
165.	Suicide by hanging	...	...	—	1	—	2	—	—	—	—	3
167.	Suicide by firearms	...	...	2	—	—	—	—	—	—	—	2
174.	Homicide	...	...	—	1	—	1	—	—	—	—	2
179.	Accidental poisoning	...	...	—	—	—	2	—	—	—	—	2
181.	Burns	...	...	—	—	—	2	—	—	—	—	2
182.	Asphyxia	...	...	—	—	—	1	—	—	—	—	1
183.	Drowning	...	...	—	—	—	2	—	—	—	—	2
186.	Accidental injury	...	...	—	—	—	2	—	—	—	—	2
	Accidental fall	...	...	1	—	—	—	—	—	—	—	1
	Road accidents	...	...	1	5	1	6	—	—	—	—	13
195.	Multiple injuries	...	...	—	1	—	2	—	—	—	—	3
198.	Execution	...	...	—	1	—	14	—	—	—	—	15
GROUP XVIII. ILL-DEFINED DISEASES.												
200.	Heart failure	...	...	—	7	1	3	—	—	1	—	12
	Cardiac asthenia	...	...	—	1	—	—	—	—	—	—	1
	Natural causes	...	...	—	—	—	14	—	—	—	—	14
	Ascites	...	...	—	—	—	1	—	—	—	—	1
	Pyrexia	...	...	—	—	—	1	—	—	—	—	1
	Surgical shock	...	...	—	—	—	—	—	—	1	—	1
	Unknown	...	...	—	1	—	—	—	—	—	—	1
TOTAL				43	181	14	376	6	2	4	1	627

## AGE GROUP DISTRIBUTION OF POPULATION AND DEATHS BY RACES.

Age group.	EUROPEAN.			ASIAN.			AFRICAN & OTHER.		
	Estimated population.	No. deaths.		Estimated population.	No. deaths.		Estimated population.	No. deaths.	
0—1	257	3	...	1,103	102	...	2,638	136	
2—4	378	—	...	1,657	12	...			
5—9	556	1	...	1,976	5	...	2,349	8	
10—14	346	2	...	1,411	4	...	3,080	14	
15—19	310	—	...	1,624	2	...	5,439	13	
20—24	563	2	...	2,406	6	...	4,861	32	
25—29	846	2	...	2,116	8	...	5,356	87	
30—34	861	1	...	1,769	6	...	4,940	43	
35—39	801	3	...	1,280	5	...	4,369	19	
40—44	644	2	...	933	5	...	3,020	13	
45—49	451	8	...	565	7	...	2,067	6	
50—54	331	3	...	356	10	...	1,204	7	
55—59	203	5	...	132	3	...	707	3	
60—64	126	3	...	162	6	...	453	3	
65—69	63	2	...	87	5	...	225	2	
70—74	35	—	...	59	4	...	135	1	
75—79	17	3	...	27	1	...	73	1	
80—84	6	—	...	24	1	...	49	—	
85—89	4	2	...	5	1	...	18	—	
90—94	2	1	...	4	1	...	6	1	
95—99	—	—	...	3	1	...	6	—	
100	—	—	...	1	—	...	5	—	
6,800			43	17,700	195	...	41,000	389	

The age distribution for Europeans and Asians has been taken in the same proportion as that for the whole Colony according to the census of 1931. The age group distribution for Africans has been taken from figures relating to urban natives in Natal Province in the Union of South Africa.

Four Asian and fifty-eight African deaths recorded as “adults” have been included in the age group 20—39.



### 9. INFANT MORTALITY.

The total number of deaths in infants under one year of age during 1939 was 177, or 28.2% of the total deaths. The percentage to total deaths was the same as last year, when the figures were 257 or 28.2%.

Reference to the age distribution table in the previous section will show that among Europeans, out of every 1,000 deaths, 69 were under one year of age and that 1.16% of the 0—1 age group died. This shows a satisfactory reduction compared with 1938, when the figures were 210 and 3.25% respectively.

Among Asians, out of every 1,000 deaths, 428 were under one year of age and 9.24% of the 0—1 age group died. These figures compare favourably with those of last year, namely 527 and 11.79% respectively.

Among Africans and others, 136 deaths occurred in the 0—4 age group. This means that out of every 1,000 deaths, 340 were of that age group, and that probably 5.15% of that group died.

#### INFANT DEATHS.

Race.			Infant deaths.		Total deaths.		Percentage of total deaths.	
European	...	...	3	...	43	...	6.98	
Asian	...	...	84	...	195	...	43.07	
African and other	...	...	90	...	389	...	23.13	
All races	...	...	177	...	627	...	28.22	

The percentage of infant deaths to total deaths for all races was the same as in 1938. The European rate declined from 21.05% to 6.98% and the Asian declined from 46.89% to 43.07% but the African rate increased from 20.81% to 23.13%.

#### INFANT MORTALITY RATES.

Race.			Live births.		Deaths.		Per 1,000 live births.	
European	...	...	85	...	3	...	35.2	
Asian	...	...	480	...	84	...	174.7	
African	...	...	412	...	90	...	217.8	
All races	...	...	977	...	177	...	180.5	

It is pleasing to note that the infant mortality rate for each race for 1939 shows a satisfactory improvement; the rate for Europeans stands at 35, the rate for Asians at 174, the rate for Africans at 217, whilst the rate for all races has improved to 180.

The combined rate for non-Europeans now stands at 194 compared with 264, 324, and 479 for the three preceding years.

The decline in infant mortality is very gratifying and it is hoped that as the work at the clinics progresses this rate will be decreased further.

## INFANT MORTALITY RATES FOR SIX YEARS.

Year.	European.		Asian.		African.		All races.	
1934	...	126	...	596	...	415	...	439
1935	...	56	...	509	...	456	...	425
1936	...	51	...	561	...	480	...	458
1937	...	109	...	309	...	338	...	307
1938	...	90	...	262	...	266	...	249
1939	...	35	...	174	...	217	...	180

## COMPARATIVE INFANT MORTALITY RATES.

Country.	Year.		European.		Asian.		African.	
England and Wales	1938	...	53	...	—	...	—	...
Bombay	...	1938	—	...	302	...	—	...
British India	...	1937	—	...	162	...	—	...
Durban	...	1938	33	...	81	...	497	...
Bloemfontein	...	1938-9	36	...	—	...	226	...
Lagos	...	1938	—	...	—	...	127	...
<b>Nairobi</b>	...	<b>1939</b>	<b>35</b>	...	<b>174</b>	...	<b>180</b>	...

As it is of practical interest to know at what ages these infant deaths occurred, the following table is appended.

## INFANT DEATHS.

Age.	European.		Asian.		African.		Total.	
Under 1 day	...	1	...	9	...	5	...	15
1—6 days	...	—	...	16	...	7	...	23
1 week	...	—	...	4	...	6	...	10
2 weeks	...	—	...	5	...	1	...	6
3 weeks	...	—	...	3	...	2	...	5
Total under 1 month	...	1	...	37	...	21	...	59
1 month	...	—	...	7	...	5	...	12
2 months	...	1	...	6	...	12	...	19
3 months	...	—	...	5	...	6	...	11
4 months	...	1	...	4	...	11	...	16
5 months	...	—	...	5	...	7	...	12
6 months	...	—	...	2	...	10	...	12
7 months	...	—	...	2	...	9	...	11
8 months	...	—	...	9	...	4	...	13
9 months	...	—	...	2	...	1	...	3
10 months	...	—	...	4	...	3	...	7
11 months	...	—	...	1	...	1	...	2
Total under 1 year	...	3	...	84	...	90	...	177



## CAUSES OF INFANT DEATHS.

Disease.	European.	Indian.	Goan.	African.	Seych.	Somali.	Total.
Asphyxia neonatorum ...	—	2	—	—	—	—	2
Bronchitis ...	—	1	—	1	—	—	2
Broncho-pneumonia ...	—	4	1	10	—	—	15
Cellulitis ...	—	1	—	—	—	—	1
Cerebral abscess ...	—	1	—	—	—	—	1
Cleft palate ...	—	1	—	—	—	—	1
Congestion of lungs ...	—	—	—	2	—	—	2
Convulsions ...	—	1	—	—	—	—	1
Collapse ...	—	1	—	—	—	—	1
Diarrhoea ...	—	12	—	7	1	2	22
Diphtheria ...	—	1	—	—	—	—	1
Dysentery ...	—	1	—	—	—	—	1
Emphysema ...	—	1	—	—	—	—	1
Haematemesis ...	—	1	—	—	—	—	1
Heart disease ...	1	—	—	—	—	—	1
Hydrocephalus ...	—	2	—	—	—	—	2
Ill-defined ...	—	3	—	7	—	—	10
Intestinal obstruction ...	—	1	—	1	—	—	2
Kikuyu disease ...	—	—	—	1	—	—	1
Laryngeal obstruction ...	—	—	—	1	—	—	1
Malaria ...	—	1	—	1	—	—	2
Marasmus ...	1	18	1	5	—	—	25
Measles ...	—	—	—	1	—	—	1
Meningitis ...	—	—	—	1	—	—	1
Meningocele ..	—	1	—	—	—	—	1
Monstrosity...	1	—	—	—	—	—	1
Nephritis ...	—	—	—	1	—	—	1
Pneumonia ...	—	13	—	32	—	—	45
Prematurity ...	—	11	2	9	—	—	22
Septicaemia ...	—	1	—	—	—	—	1
Syphilis ...	—	—	—	6	—	—	6
Tetanus ...	—	—	—	1	—	—	1
Whooping cough ...	—	1	—	—	—	—	1
TOTAL ...	3	80	4	87	1	2	177

Although the pneumonias still head the list of causes of infant deaths, the percentage of this cause to total infant deaths has steadily decreased the last three years. The figure for 1939 was 33.8% compared with 38.1%, 40.7%, and 44.9% for the preceding three years.

The percentage of diarrhoea and congenital debility as a cause of death was somewhat increased during the year, the figures standing at 12.4% and 14.1% respectively.

The percentage of deaths due to prematurity amounted to 12.4%, a figure similar to last year.

# 10. NOTIFIABLE INFECTIOUS DISEASES.

No alteration to the list of notifiable diseases has been made since malaria was added in 1930.

The number of cases of notifiable diseases notified during 1939 totalled 743, compared with 779, 1,121, and 927 during the three preceding years respectively.

The number of cases of locally acquired malaria notified during the year totalled 545 compared with 564, 942, 751, and 3,500 for the four previous years.

Excluding the 545 malaria cases, the total of 194 compares favourably with the total of 215 for 1938.

Enteric fever notifications showed an increase over the previous year, being 92 compared with 53. This increase was largely due to a series of 48 cases from the Prison Department.

Tuberculosis showed a decrease from 55 to 42 cases notified, compared with 1938.

Diphtheria accounted for 14 notifications against 8, 11, and 7 during the three previous years.

Cerebro-spinal meningitis was recorded in slightly fewer instances than last year, the number notified being 18 compared with 22.

Noteworthy notifications during the year included one case each of encephalitis lethargica and acute anterior poliomyelitis and four cases of Malta fever.

There was a considerable reduction in the number of cases of relapsing fever notified, the figure for the year being six compared with 38 during 1938. Puerperal sepsis, tropical typhus, and anthrax also showed a reduction of cases notified, compared with the previous year..

## INFECTIOUS DISEASES NOTIFIED.

Disease.	White.	Indian.	Goan.	African.	Arab.	Total.
Malaria ... ..	29	262	—	254	—	545
Acute anterior poliomyelitis ...	—	1	—	—	—	1
Anthrax ... ..	—	—	—	4	1	5
Blackwater ... ..	—	1	1	1	—	3
Cerebro-spinal meningitis ...	1	4	—	13	—	18
Diphtheria ... ..	2	6	4	2	—	14
Encephalitis lethargica ...	—	1	—	—	—	1
Erysipelas ... ..	—	1	—	1	—	2
Leprosy ... ..	1	—	—	—	—	1
Malta fever ... ..	1	—	—	3	—	4
Ophthalmia neonatorum ...	—	1	—	—	—	1
Puerperal sepsis ... ..	—	2	1	—	—	3
Relapsing fever ... ..	1	—	—	5	—	6
Tuberculosis ... ..	—	6	1	34	1	42
Tropical typhus ... ..	4	1	—	—	—	5
Typhoid fever ... ..	5	10	1	76	—	92
TOTAL ... ..	44	296	8	393	2	743

## SEASONAL INCIDENCE OF INFECTIOUS DISEASES NOTIFIED.

Disease.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
Malaria ... ..	22	26	44	54	76	97	99	51	22	21	9	24	545
Ac. ant. poliomyelitis ..	—	1	—	—	—	—	—	—	—	—	—	—	1
Anthrax ... ..	—	—	1	—	—	1	2	—	—	1	—	—	5
Blackwater ... ..	—	—	—	—	—	—	—	—	1	—	—	2	3
Cerebro-spinal meningitis	—	—	2	—	1	4	1	4	2	1	1	2	18
Diphtheria ... ..	—	—	3	—	3	5	—	—	1	—	—	2	14
Encephalitis lethargica	—	—	—	—	—	—	—	—	—	—	—	1	1
Erysipelas ... ..	—	—	—	—	—	—	—	1	—	—	1	—	2
Leprosy ... ..	—	—	—	—	—	1	—	—	—	—	—	—	1
Malta fever ... ..	1	1	—	—	—	—	—	1	—	—	1	—	4
Ophthalmia neonatorum	—	—	—	1	—	—	—	—	—	—	—	—	1
Puerperal sepsis ...	—	—	—	2	—	—	—	—	—	—	—	1	3
Relapsing fever ...	—	—	—	3	1	—	1	—	—	—	1	—	6
Tuberculosis ... ..	—	4	2	4	3	6	6	1	4	5	3	4	42
Typhus ... ..	2	—	—	—	1	—	1	—	1	—	—	—	5
Typhoid ... ..	2	3	4	—	3	14	16	16	8	5	8	13	92
TOTAL ...	25	34	56	64	89	128	126	74	38	33	24	49	743

## INCIDENCE AND DEATH RATES FOR NOTIFIABLE INFECTIOUS DISEASES.

Disease.	No. of cases.	No. of deaths.	Incidence per 1,000.	Deaths per 1,000.
Malaria ... ..	545	16	8.316	0.244
Acute anterior poliomyelitis	1	—	0.015	—
Anthrax ... ..	5	1	0.075	0.015
Blackwater fever ...	3	—	0.045	—
Cerebrospinal meningitis	18	10	0.274	0.152
Diphtheria ... ..	14	5	0.213	0.076
Encephalitis lethargica	1	1	0.015	0.015
Erysipelas ... ..	2	—	0.030	—
Leprosy ... ..	1	—	0.015	—
Malta fever ... ..	4	—	0.061	—
Ophthalmia neonatorum	1	—	0.015	—
Puerperal sepsis ...	3	2	0.045	0.030
Relapsing fever ...	6	—	0.091	—
Tuberculosis ... ..	42	32	0.640	0.488
Tropical typhus ...	25	—	0.075	—
Typhoid fever ... ..	92	12	1.403	0.183





## 11. INFECTIOUS AND COMMUNICABLE DISEASES.

### ACUTE ANTERIOR POLIOMYELITIS.

One case was reported during the year. Only three cases have been previously notified, one in 1934 and two in 1931.

### ANTHRAX.

Five cases were recorded among four Africans and one Arab. One of the African cases had a fatal termination.

### BERI-BERI.

No cases of this disease was notified. Five previous cases have been reported, one last year, the others being at long intervals.

### BLACKWATER FEVER.

Three instances were notified comprising one Indian, one Goan, and one African. No death was recorded from this disease.

### CEREBROSPINAL MENINGITIS.

The incidence of this condition was less than last year, 18 cases being notified, comprising one European, four Asians, and 13 Africans. Ten of these cases had a fatal termination. This disease appears to be becoming more frequent the last four years.

### CHICKENPOX, MEASLES, WHOOPING COUGH, MUMPS.

All these non-notifiable conditions have been present during the year, but judging by admissions to hospital their incidence has been less than last year.

Measles and mumps were more prevalent than last year, the incidence being more marked in the first half. One African death was attributed to measles.

Chickenpox and whooping cough were less prevalent than last year, their incidence being fairly evenly spread over the year. Two Asian and one African death were attributed to whooping cough.

### CHOLERA.

There is no record that cholera has occurred in Nairobi.

### DIPHTHERIA.

There was some increase in the number of cases reported, the total of 14 comprising 2 Europeans, 6 Indians, 4 Goans, and 2 Africans. Five deaths, comprising 3 Indian, 1 Goan, and 1 African were recorded. The disease did not assume epidemic proportions, the incidence occurring over five months.

### DYSENTERY.

Judging by the number of deaths, namely nine, the incidence was less than last year when the number of deaths totalled 14; the year previous to this the total was 16.

### ENCEPHALITIS LETHARGICA.

One fatal case in an Indian was reported.

### ENTERIC FEVER GROUP.

There was a considerable increase in the number of notifications for this condition compared with last year, the total being 92 against 53.

The 92 cases comprised 5 Europeans, 10 Indians, 1 Goan, and 76 Africans. There were 12 African fatal cases. The incidence was more marked in the middle of the year.

### ERYSIPELAS.

Only two cases were recorded, one Asian and one African. This disease is apparently not prevalent in Nairobi.

### GLANDERS, RABIES.

Neither of these diseases have yet been reported in Nairobi.



## LEPROSY.

One European case was notified; previous cases occurred in 1936. The days in hospital for African cases increased to 1,136 compared with 380 patient days in 1938.

## MALTA FEVER.

One European and three African cases were reported. Previous cases occurred during 1936 and 1934.

## MALARIA.

Detailed information regarding this infection will be found in a separate section of this report.

## OPHTHALMIA NEONATORUM.

One case in an Asian was reported. This is the first case reported since 1935.

## PLAGUE.

No case of human plague occurred in the Municipality during the year. Last year there were 10 cases and in 1937 there were 25 cases.

## PNEUMONIA.

This disease not being notifiable it is only possible to judge the severity of incidence by the number of deaths. During 1939, pneumonia was responsible for 110 deaths and broncho-pneumonia for 55, a total of 165 deaths. This total shows a very marked decrease compared with former years, the figure for 1938 being 365 and for 1937, 437. It can be reasonably inferred that this large drop in the number of deaths is not wholly due to decreased incidence but has been influenced by modern treatment. This reasoning is borne out by noting that the percentage of deaths from the pneumonias to total deaths during the year amounted to 26.3%, compared with 40.0%, 42.0%, and 40.9% for the three previous years.

Of the 165 deaths from this disease, 60 were of infants under one year of age.

The annual death rate for the pneumonias per thousand of population for all races during 1939 was 2.5 compared with 5.5 for 1938 and 7.1 for 1937.

## PUERPERAL SEPSIS.

Only two Indian and one Goan cases were notified although one Indian and one African death were recorded. This obviously does not represent a true picture of the incidence of this condition in Nairobi.

## RELAPSING FEVER.

Six cases were notified among one European and five Africans, no deaths being recorded.

This shows a big decrease on the number of notifications during last year, namely 38.

## SCARLET FEVER.

No case was reported during the year.

## TROPICAL TYPHUS.

Fewer cases were notified during 1939 than in the previous year, five against 10; the cases concerned four Europeans and one Asian.

## TUBERCULOSIS.

Tuberculosis of all forms was notified in 42 instances during the year compared with 55 instances last year. There were 32 deaths from this disease, 27 being from the pulmonary variety.

The incidence rate of all forms of notified tuberculosis equalled 0.64 per thousand persons compared with 0.85 in 1938.

The death rate was 0.48 per thousand persons compared with a similar figure for last year.

## 12. ADMISSIONS TO HOSPITAL.

The following details are of persons resident in the Municipality admitted to the three hospitals available, namely, European Hospital, Native Hospital, and Infectious Diseases Hospital for infectious or communicable diseases requiring segregation for the public welfare.

These institutions are maintained by the Government but the Municipal Council is responsible for resident patients to the extent of payment for treatment.

The admissions during 1939 totalled 307 compared with the same figure for 1938 and 266 and 524 for the previous two years.

The patient days for 1939 amounted to 7,883, a slight decrease compared with the total for 1938 of 8,043 days. The patient days for tuberculosis showed a decrease compared with the previous year, 3,316 against 4,240, whilst the days for leprosy showed an increase from 380 to 1,136.

The total for measles, typhoid fever, namely 984 and 943, showed considerable increases over last year's figures, but the total for chickenpox showed a decrease from 1,498 to 752.

Decreases were also registered in the case of cerebrospinal meningitis, relapsing fever, and tropical typhus, whilst the total for diphtheria was increased. The figure for whooping cough remained stationary.

### ADMISSIONS TO HOSPITAL AND PATIENT DAYS.

Hospital.	EUROPEANS.		ASIANS.		AFRICANS.		TOTAL.	
	Admis-	Patient	Admis-	Patient	Admis-	Patient	Admis-	Patient
	sions.	days.	sions.	days.	sions.	days.	sions.	days.
European ...	8	106	...	—	...	—	...	8 106
Native ...	—	—	...	3 56	...	69 1518	...	72 1574
Inf. Diseases	7	42	...	5 53	...	215 6108	...	227 6203
TOTAL ...	15	148	...	8 109	...	284 7626	...	307 7883

### PATIENT DAYS BY RACES.

	European.		Asian.		African.		Total.
Acute anterior poliomyelitis ...	2	...	—	...	—	...	2
Anthrax ...	—	...	—	...	101	...	101
Chickenpox ...	—	...	—	...	752	...	752
Cerebrospinal meningitis ...	—	...	5	...	126	...	131
Diphtheria ...	19	...	—	...	106	...	125
Erysipelas ...	—	...	—	...	21	...	21
Leprosy ...	3	...	—	...	1,133	...	1,136
Malta fever ...	—	...	—	...	71	...	71
Measles ...	19	...	4	...	961	...	984
Mumps ...	—	...	—	...	163	...	163
Relapsing fever ...	—	...	—	...	20	...	20
Tropical typhus ...	28	...	23	...	—	...	51
Tuberculosis ...	30	...	77	...	3,209	...	3,316
Typhoid fever ...	43	...	—	...	900	...	943
Whooping cough ...	4	...	—	...	63	...	67
TOTAL ...	148	...	109	...	7,626	...	7,883

## PATIENT DAYS BY MONTHS.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Ac. ant. poliomyelitis	—	2	—	—	—	—	—	—	—	—	—	—	2
Anthrax ... ..	—	—	16	12	—	1	25	30	—	11	6	—	101
Chickenpox ... ..	35	24	10	36	58	59	73	4	57	42	38	316	752
Cerebrospinal meningitis	—	—	8	5	31	30	21	18	7	6	5	—	131
Diphtheria ... ..	—	1	27	—	14	30	3	2	35	—	13	—	125
Erysipelas ... ..	—	—	16	—	—	—	—	—	—	—	5	—	21
Leprosy ... ..	49	80	100	175	197	159	86	54	39	31	73	93	1136
Malta fever ... ..	26	19	—	—	—	—	—	—	—	—	26	—	71
Measles ... ..	18	171	110	156	115	90	88	146	30	20	30	10	984
Mumps ... ..	50	—	—	12	2	32	—	—	—	6	—	61	163
Relapsing fever ...	—	—	—	8	—	—	12	—	—	—	—	—	20
Tropical typhus ...	26	—	—	—	—	15	5	—	5	—	—	—	51
Tuberculosis ... ..	364	245	282	280	297	303	269	274	298	215	215	274	3316
Typhoid fever ... ..	57	21	41	2	27	149	155	212	114	82	52	31	943
Whooping cough ...	18	—	—	—	—	1	16	4	—	24	—	4	67
TOTAL ...	643	563	610	686	741	869	753	744	585	437	463	789	7883

## 13. MALARIA.

Malaria was made notifiable in February, 1930. During the ten years that notification has been in force, the accuracy of these notifications undoubtedly has increased although even now the figures do not represent a correct indication of all cases occurring, a good many cases not coming to the notice of the medical practitioners.

During 1939, 889 cases were notified among 674 residents and 215 non-residents; during the previous year the figures were 632 and 132 respectively.

## MALARIA NOTIFICATION.

RESIDENTS.					NON-RESIDENTS.					TOTAL.	
	European.	Asian.	African.	Total.	European.	Asian.	African.	Total.			
January ...	2	23	—	25	...	3	4	—	7	...	32
February ...	2	13	11	26	...	3	3	1	7	...	33
March ...	5	26	16	47	...	4	6	—	10	...	57
April ...	2	24	34	60	...	2	3	9	14	...	74
May ...	9	35	59	103	...	7	3	16	26	...	129
June ...	15	38	62	115	...	3	2	44	49	...	164
July ...	10	58	56	124	...	9	5	35	49	...	173
August ...	16	32	20	68	...	4	1	14	19	...	87
September ...	5	8	20	33	...	3	1	4	8	...	41
October ...	—	8	19	27	...	—	1	4	5	...	32
November ...	2	7	4	13	...	1	1	7	9	...	22
December ...	1	16	16	33	...	2	—	10	12	...	45
TOTAL ...	69	288	317	674	...	41	30	144	215	...	889



## LOCALLY ACQUIRED INFECTIONS.

	European.		Asian.		African.		Total.
January	...	—	...	22	...	—	22
February	...	2	...	13	...	11	26
March	...	3	...	25	...	16	44
April	...	1	...	22	...	31	54
May	...	3	...	30	...	43	76
June	...	11	...	36	...	50	97
July	...	5	...	50	...	44	99
August	...	4	...	29	...	18	51
September	...	—	...	8	...	14	22
October	...	—	...	6	...	15	21
November	...	—	...	7	...	2	9
December	...	—	...	14	...	10	24
TOTAL	.....	29	...	262	...	254	545

It will be noted that the number of cases rises steadily, reaching a peak in July then falling gradually to the end of the year. This seasonal incidence is unusual in that it does not follow two or three months after the rainfall curve. The increase of incidence among Europeans is accounted for by the number of refugees entering the town, a considerable number of whom have contracted the infection.

The malaria rate among resident Africans is maintained by the high incidence at the Prisons, no less than 138 notifications being received from this quarter. It is considered that the Prison area is a source of danger to the town.

The increase of incidence among non-resident Africans may be accounted for by the numbers recruited for the Forces from known malarious areas and also by the incidence in the reserves rising and these Africans coming to the town for treatment.

## INCIDENCE OF NOTIFIED MALARIA PER 1,000 PERSONS.

Race.		1935.	1936.	1937.	1938.	1939.
European	...	26.58	10.53	5.83	3.99	4.26
Asian	...	101.50	34.0	31.21	14.80	14.70
African	...	59.92	10.67	9.65	6.60	6.19
All races	...	69.93	18.04	15.36	8.62	7.71

The diagnosis of all notified cases with the exception of these termed "Clinical" has been supported by laboratory evidence.

## PROBABLE SOURCE OF INFECTION.

Probable source of infection.		NUMBER OF CASES.				
		1935	1936	1937	1938	1939
Nairobi	...	3,281	751	942	564	545
Ex-Nairobi	...	219	151	83	68	129
Doubtful	...	—	—	—	—	—
TOTAL	...	3,500	902	1,025	632	674



## TYPE OF INFECTION AND PROBABLE SOURCE.

Probable source.	Clinical.	Benign tertian.	Quartan.	Sub-tertian.	Plasmodium ovale.	Double infections.	Quadruple infections.	Total cases.
Nairobi ...	13	2	20	509	1	9	—	545
Ex. Nairobi ...	1	1	3	122	2	1	1	129
Total residents ...	14	3	23	631	3	10	1	674
Total non-residents	2	—	7	206	—	4	—	215
TOTAL ...	16	3	30	837	3	14	1	889

Subtertian infections reached 94.0% of the total cases compared with 92.8% last year.

Quartan infections assume second place, being 3.3% of the total.

Only three cases of benign tertian were recorded compared with 15 during 1938.

The double cases were concerned with combinations of subtertian and quartan and subtertian and benign tertian.

The quadruple case recorded was concerned with subtertian, benign tertian, quartan, and *P. ovale* infections.

## NAIROBI INFECTIONS.

District.			Number of cases notified.				
			1935	1936	1937	1938	1939
1.	Upper Parklands	...	5	4	1	1	—
2.	Muthaiga	... ..	17	1	2	3	14
3.	Westlands	... ..	11	1	—	1	6
4.	Parklands	... ..	56	17	31	22	13
5.	Forest Road	...	458	141	129	5	—
6.	Racecourse Road	...	499	98	118	97	99
7.	Eastleigh	... ..	108	11	51	21	41
8.	Kilimani	... ..	24	2	7	4	3
9.	Hill	... ..	100	9	41	40	23
10.	Commercial	...	2103	457	562	370	346
TOTAL ... ..			3381	751	942	564	545

The figure of 346 in the commercial area is somewhat misleading as 138 cases were reported from the Prison and 27 were from the Railway landhies.

The mortality rate of the cases notified reached the figure of 2.9% which compares favourably with 3.3%, 3.4%, and 4.6%, the corresponding rates for the three previous years.

The incidence rate for malaria during the year was 7.71 per thousand persons whilst the death rate from this disease was 0.24 compared with 0.27 and 0.61 for 1938 and 1937 respectively.

Three cases of blackwater fever were recorded but no deaths were noted from this condition. The cases comprised one Indian, one Goan, and one African.

## DEATH RATES FOR MALARIA.

Year.		Number of deaths.		Death rate per 1,000.
1919	...	47	...	—
1920	...	34	...	—
1921	...	22	...	—
1922	...	29	...	—
1923	...	28	...	—
1924	...	32	...	—
1925	...	19	...	—
1926	...	130	...	—
1927	...	25	...	1.1
1928	...	27	...	0.60
1929	...	27	...	0.56
1930	...	39	...	0.82
1931	...	17	...	0.35
1932	...	20	...	0.42
1933	...	24	...	0.50
1934	...	32	...	0.67
1935	...	58	...	1.15
1936	...	32	...	0.64
1937	...	38	...	0.61
1938	...	18	...	0.27
1939	...	16	...	0.24

**14. ANTI-MALARIAL WORK.**

As a routine, all streams which pass through the Municipality were cleared at regular intervals, and the concrete drainage systems were inspected, cleaned and repaired when required.

An automatic syphon sluice dam was installed on the Spring Valley stream towards the end of the year, and is working quite efficiently, no breeding having been located below the sluice, which works about once every sixteen hours. It is hoped to erect a series of these sluices on the majority of the streams. The cost is low, they require little attention, and a saving of oil and fluid will result.

A survey was made of the Kirichwa Kubwa River with the object of estimating the cost of canalisation. The inner bed for the most part is rocky and pooling with consequent breeding is frequent. It was considered that canalisation would be costly, but with certain rock barriers removed, a syphon sluice could be installed.

In September, agreement was reached with the owner of the Nairobi Swamp for the cessation of irrigation. The main irrigation channels were filled in; however a certain amount of irrigation is still being carried on with storm water and sullage water which flows on to the plot. It is essential in order to deal with this well-known breeding area that this water either be diverted or taken to the river in a channel incapable of being tapped.

Ten murrum pits near the Racecourse were filled with builders' spoil and considerable filling was carried out at the flood break near Ainsworth Bridge.

The outbreak of war led to the digging of trenches and dugouts; as was to be expected, many of these were constructed without thought of drainage; in consequence some had to be filled in as they became active breeding places.

It is regrettable that little or no work of a permanent routine has been undertaken during the year.

Three prosecutions for allowing breeding on quarries, and four prosecutions for allowing breeding on other places were undertaken, convictions and fines were secured. The quarries have now been partially controlled by filling.

On account of the drought, during the latter part of the year cattle became a nuisance, and were responsible for a great many breeding places and damage to drains and streams. In this connection 1,477 cattle were impounded, but by-laws in this respect are not strong enough to be of practical use.

The six searchers carried out their duties until March when their number was augmented by two; their duties were confined mainly to larvae collection although a few adult searches were made.

A special survey of the Kibera Location was carried out and numerous *A. gambiae* and other anopheline breeding places were located. It was carried out during the dry weather and the advent of rains would indicate this area becoming a dangerous potential source of anophelines. Control measures should be applied to these outlying parts as they provide a continuous supply of mosquitoes to infest the Municipality.

#### OILING.

Routine control with oil and Coopers' fluid was carried out on the 64,694 breeding places detected. This work entailed the use of 3,960 gallons of oil and 19,300 gallons of mixed Coopers' anti-malarial fluid.

The lorry used in connection with the work travelled 8,640 miles, and the Anti-Malarial Officer travelled 13,000 miles in carrying out his various duties.

### 15. LABORATORY.

Routine identification of larvae collected by the searchers was continued, 8,539 larvae being examined, comprising 1,253 *Anopheles*, 6,840 *Culex*, 379 *Aedes* and 67 others, including *Unanotaenia* and *Ficalbia*.

All female *A. gambiae* caught in house searches were examined for sporozoites; two of a total of 142 were found with sporozoites.

Several *Megarhinns brevipalpis* larvae were reared from tree holes in the City Park. This is probably a new record for Nairobi.

In addition to the list of mosquitoes recorded in Nairobi published in the last report, the following have to be added:—

*Anopheles funestus*.

*Culex* (*Mochthogenes*) *inconspicuus*.

*Megarhinns brevipalpis*.

The number of blood slides from the Municipal clinics examined for malaria increased during the year.

#### MOSQUITO LARVAE IDENTIFICATION.

		<i>Anopheles.</i>		<i>Culex.</i>		<i>Aedes.</i>		Others.		Total.
January	...	201	...	563	...	22	...	6	...	792
February	...	168	...	604	...	22	...	6	...	800
March	...	78	...	691	...	70	...	2	...	841
April	...	100	...	678	...	164	...	—	...	942
May	...	106	...	471	...	9	...	13	...	599
June	...	138	...	461	...	34	...	3	...	636
July	...	194	...	500	...	10	...	7	...	711
August	...	19	...	310	...	14	...	1	...	344
September	...	64	...	456	...	—	...	—	...	520
October	...	45	...	736	...	4	...	—	...	785
November	...	69	...	713	...	23	...	2	...	807
December	...	71	...	657	...	7	...	27	...	762
TOTAL	...	1253	...	6840	...	379	...	67	...	8539



RELATION OF *A. GAMBIAE* AND OTHER ANOPHELES TO TOTAL  
BREEDING PLACES.

Breeding places.	Total breeding places.	<i>A. gambiae</i> .	Other Anopheles.
Drains ... ..	744	27	59
Road drains ... ..	103	1	4
Rainpools ... ..	151	5	15
Streams ... ..	415	8	59
Pools in dry streams ...	368	8	58
Quarries ... ..	115	11	20
Murum pits ... ..	125	5	24
Clay pits ... ..	55	1	2
Irrigation channels ...	89	4	11
Foot prints, tracks ...	82	4	14
Swamps ... ..	21	—	6
Rock pools ... ..	164	3	31
Springs ... ..	85	—	26
Seepages ... ..	20	—	5
Concrete containers ...	54	2	1
Domestic utensils ...	106	—	3
Wells ... ..	4	—	—
A.R.P. trenches ... ..	16	1	—
Holes in rocks ... ..	2	—	—
TOTAL ... ..	2719	80	338

In the 2,719 breeding places mentioned, anopheles were identified in 418 instances, representing 15.4% of the total.

The *A. gambiae* rate in relation to total breeding was 2.9%, whilst the rate in relation to total anopheles breeding places was 23.7%.

## 16. PESTS.

Considerable work has been carried out in respect of bed bugs during the year, 131 rooms being treated by Paradichlorbenzene. Although efficacious, this method is not entirely satisfactory on account of it being tedious and the smell tenacious.

Means to deal with bed bugs in connection with the native locations were devised in the shape of a current steam disinfector.

As a result of complaints, a survey was made of fly breeding at the sewage disposal works. It was found that breeding on the disposal trenches was prolific, the offenders being *Musca domestica* and *Musca sorbens*. These flies laid their eggs in the trenches before they were covered, the larvae finding no difficulty in making their way through the earth covering and pupating on the surface.

Covering the solids with lime had very little effect in destroying the larvae, but paradichlorbenzene sprayed on the solids appeared to prevent the egg laying.

The sprinkler filter beds themselves bred out *Psychoda alternata* and *Telmaboscopus albipunctatus* in enormous quantities, the flies breeding from the surface to a depth of two feet in the chippings of the filters. Flooding of the filters was impossible owing to their construction, but the addition of chlorine helped to reduce the breeding considerably without interfering with the bacteriological action. Pyrethrum spraying of adults on the walls of the filter helped to reduce the numbers at the expense of *P. alternata* only, as *T. albipunctatus* appear to have increased.

### 17. RODENT DESTRUCTION.

Routine rat trapping was carried out as formerly, the rat gang consisting of six boys working under the direction of the sanitary inspectors within the Commercial area.

The Railway Administration provides its own gang which operates on railway premises and land.

The number of rats destroyed by the Municipal gang totalled 29,250 compared with 30,996 for 1938.

The number of rats accounted for by the Railway gang was 9,418 compared with 10,993 during the previous year.

It is hoped that the smaller number destroyed indicates a decrease in the rat population as it is evident that there are fewer rats in these areas which have been improved under Town Planning Schemes.

A percentage of the rat catch is examined daily at our laboratory. During the year 1,741 were thus examined but none were found positive to *B. pestis*.

#### RATS DESTROYED.

			Municipal gang.		Railway gang.		Total.
January	...	...	2,396	...	1,025	...	3,421
February	...	...	2,333	...	777	...	3,110
March	...	...	2,715	...	820	...	3,535
April	...	...	2,335	...	619	...	2,954
May	...	...	2,558	...	886	...	3,444
June	...	...	2,511	...	1,219	...	3,730
July	...	...	2,526	...	1,318	...	3,844
August	...	...	2,484	...	758	...	3,242
September	...	...	2,187	...	533	...	2,720
October	...	...	2,400	...	407	...	2,807
November	...	...	2,527	...	552	...	3,079
December	...	...	2,278	...	504	...	2,782
Total	...	...	29,250	...	9,418	...	38,668

### 18. NATIVE BURIALS.

The administration of the burial of pagan natives including the cemetery is in the hands of the Public Health Department as also is the control of the Public Mortuary.

It is hoped early in the new year to acquire a new native hearse as the present one has outlived its usefulness.

The new burial ground situated off the road to the Civil Aerodrome, which was selected and put into use two years ago, is still found satisfactory. An extension will have to be made during the coming year.

534 interments were made at this cemetery during the year.

The hearse used in connection with these burials was requisitioned a total of 511 times, 283 to the Native Hospital, 60 to Pumwani, 17 times to Mathari Hospital, 64 times to Infectious Diseases Hospital, 28 to the Prison, and 59 times to the Mortuary.

### 19. CREMATORIUM.

The question of the installation of a Crematorium in Nairobi is worthy of further consideration during the coming year, as the need appears to be growing.

The original scheme put forward in 1937 has been again deferred for financial reasons.

The site suggested is in the grounds of the City Park, while electricity has been suggested as a suitable method of power.



## 20. WATER SUPPLY.

Nairobi obtains its water supply from two sources: the Kikuyu Springs and the Ruiru River.

The Kikuyu Springs maintained a fair average supply of 1,155,070 gallons a day from January to August, but owing to the continued dry weather, the supply during the last four months of the year decreased to an average of 1,069,450 gallons a day. The Kikuyu borehole was utilised during December and increased the total by 20,000 gallons a day.

The Ruiru River supply, during the first eight months of the year, delivered an average of 380,200 gallons a day, but alterations at the site of the intake carried out in August increased this source of supply to an average of 468,100 gallons a day. During the first two months of the year experiments were carried out in connection with the grading of sand for the filters at the Filtration Plant. However, in March all four filters were in use and have been working satisfactorily during the remainder of the year.

The amount of water delivered to Nairobi and district during 1939 was 560,298,360 gallons, the average daily consumption working out at 1,466,412 gallons compared with 1,292,543 gallons during 1938. The consumption of water per day was equivalent to 22.4 gallons per head of population. 39,805 feet of new distribution pipes were laid during the year, 22,950 feet being 12 inches in diameter, 1,400 feet being nine inches, 11,400 feet being four inches, and 4,055 feet being three inches in diameter.

Weekly routine bacteriological examinations are carried out by the Public Health Department. These examinations show that the water in the reservoir is satisfactory, Coliform type bacilli being constantly absent in less than 100 m.l.

The hydrogen ion content of the water in the reservoir was maintained at an average of 6.8, the limits being 6.4 and 7.4.

Chemical analysis of the fully treated water in parts per 100,000 is:—

Ammonia saline	...	...	.001	Nitrites	...	...	...	Nil
Ammonia albuminoid	...	...	.001	Chlorine	...	...	...	2.3
Oxygen absorbed 4 hrs. at 24°C.	...	...	.0104	Free chlorine	...	...	...	Nil
Hardness. Total	...	...	6°	SiO <sub>2</sub>	...	...	...	2.15
Permanent	...	...	4°	Fe	...	...	...	.03
Temporary	...	...	2°	Alkalinity methyl orange	...	...	...	8.0
Sulphates	...	...	Trace	Total solids	...	...	...	16.36
Nitrates	...	...	Trace					

## 21. MUNICIPAL BREWERY.

During 1939, 65,940 gallons of native beer were issued from the Municipal Brewery to be retailed at the Municipal beer shops in the native locations.

At weekly intervals samples of the beer brewed was examined by the Public Health Department in order to estimate the amount of alcohol by volume that it contained. The average amount of alcohol by volume these samples contained was 4.40%, lying between the limits of 3.45% to 5.40%.

## 22. AMBULANCE.

The ambulance service which was instituted the middle of last year continued to function satisfactorily. The ambulance, which is housed at the Fire Station being available at all hours, was called out on 92 occasions, 80 calls being in connection with European patients, eight for Asians, and four for Africans.

The distance travelled was 723 miles.



**23. POUND.**

The pound is situated in the Municipal landhies next to the Abattoir. During the year were impounded:—

Oxen	...	...	1,110	Dogs	...	...	74
Donkeys	...	...	16	Goats	...	...	38
Mules	...	...	7	Fowls	...	...	2
Sheep	...	...	7				

**24. NEW BUILDINGS.**

The number of plans submitted during the year totalled 506, the figure being somewhat smaller than last year when the total was 545. The decrease may be explained by the disturbed conditions prevailing at the latter part of the year.

A large number of these plans required further scrutiny following amendments being made.

Inspections in connection with works in progress numbered 2,888 compared with 2,487 during 1938.

A total of 337 Completion Certificates were issued.

**25. SANITATION.****CONSERVANCY.**

Night soil collection by the single bucket system still prevails as does the method of disposal by trenching and the method of transport by ox drawn vehicles.

It is considered that conversion to a two bucket system should again be seriously considered as the system in vogue is conducive to and productive of many complaints which are justifiable.

The daily number of buckets conserved totalled 3,524 compared with 3,469 last year.

New and existing premises to the extent of 55 were connected to the sewerage system with a total of 247 water closets. There are now 2,017 water closets in use connected with the sewers.

New septic tanks have been installed in 98 instances making a total of 677 in the Municipality.

Two conserving tanks in connection with septic tanks on land not capable of dealing with the effluent have been installed, increasing the total to 21.

Two septic pits only were permitted during the year, the nature of the soil being suitable to warrant their use.

**SEWERS.**

Considerable work in connection with sewerage was carried out during the year, 13,415 feet of sewers being laid. Of this total 8,855 feet of sewers were laid in connection with the Zone B scheme, comprising 990 feet of 18", 3,320 feet of 12", and 4,545 feet of 9" piping.

Sewers to the extent of 4,560 feet of various size pipes were laid in the undermentioned localities.

Victoria Street	...	...	18" pipe	...	440 feet
Victoria Street	...	...	15" "	...	405 "
Victoria Street	...	...	9" "	...	150 "
Pumwani Bridge	...	...	12" "	...	455 "
Sadler Street	...	...	9" "	...	695 "
Cordeiro Estate	...	...	9" "	...	265 "
Racecourse Road	...	...	9" "	...	590 "
Quarry Road	...	...	9" "	...	985 "
Swamp Sewer extension	...	...	9" "	...	575 "

The sewage outfall works situated near the Nairobi River at Eastleigh were completed and used at the beginning of June. Since their inception the works have dealt with an average of 360,000 gallons of crude sewage a day. Two additional filter beds are being constructed in order to deal more efficiently with wet weather flow.

#### CARCASES REMOVED.

The following animals died in the Municipal area and their carcasses were removed and destroyed in the combustion chamber of the destructor.

Oxen	...	...	6
Horses	...	...	3
Mules	...	...	6
Dogs	...	...	7
			—
			22
			—

## 26. SANITARY INSPECTIONS.

Details of the work performed by the inspectorial staff of the Public Health Department will be found in the following summary.

During the year 9,393 premises were inspected for nuisances compared with 10,260 during 1938 and 1,192 defects were remedied.

Although the figures are lower than last year, the total is very satisfactory considering the great amount of time given by the inspectors to A.R.P. work.

The number of plans dealt with, namely 506, was less than in 1938, this decrease being undoubtedly due to war disturbance, but the number of inspections made in connection with plans was 2,888, this number being 401 more than last year.

### SUMMARY OF WORKS PERFORMED.

#### NUISANCES.

##### Inspections made to:—

Dwelling houses	...	...	...	...	...	3,120
Restaurants and eating houses	...	...	...	...	...	292
Laundries	...	...	...	...	...	57
Hotels and bars	...	...	...	...	...	82
Offensive trades	...	...	...	...	...	46
Stables and cattle sheds	...	...	...	...	...	49
Offices and trade premises	...	...	...	...	...	2,096
Open spaces, streets, etc.	...	...	...	...	...	1,066
Public buildings	...	...	...	...	...	188
Complaints investigated	...	...	...	...	...	82
House to house inspections	...	...	...	...	...	281
Premises surveyed	...	...	...	...	...	6

##### Defects remedied:—

Premises dirty or verminous	...	...	...	...	83
Light or ventilation insufficient	...	...	...	...	11
Dwellings unfit for habitation	...	...	...	...	119
Yards unpaved	...	...	...	...	23
Rat infestation	...	...	...	...	13
Latrine accommodation defective	...	...	...	...	122
Latrine accommodation inadequate	...	...	...	...	63
Drains, closed water carriage, choked	...	...	...	...	32
Drains, closed water carriage, defective	...	...	...	...	21
Drains, open, choked	...	...	...	...	70
Drains, open, defective	...	...	...	...	28
Drains absent or inadequate	...	...	...	...	26

Septic tanks or cesspits choked ... ..	18
Septic tanks or cesspits defective ... ..	19
Waste water disposal defective or inadequate ...	42
Soil or waste pipes choked ... ..	5
Soil or waste pipes defective ... ..	9
Accumulations of refuse ... ..	175
Foodstuffs unprotected against rats ... ..	35
Sleeping in kitchens or food stores ... ..	17
Mosquito breeding ... ..	141
Miscellaneous ... ..	117
Defects remedied by verbal intimation ... ..	504
Defects remedied by written intimation ... ..	108
Defects remedied by Statutory Notices ... ..	580

## SEWERAGE CONNECTIONS.

Premises connected to sewer ... ..	55
Pail closets, etc., converted into water closets ... ..	97
New closets installed to sewer ... ..	247

## SEPTIC TANKS, ETC.

Number installed ... ..	96
Septic pits' ... ..	2
New closets connected to septic tanks and pits ... ..	184

## ERECTION AND ALTERATION OF BUILDINGS.

Plans dealt with ... ..	506
Inspections made ... ..	2,888
Completion certificates issued ... ..	337

## LICENSING OF TRADE PREMISES.

Inspections made ... ..	645
Re-inspections made ... ..	55

## INFECTIOUS DISEASES.

Cases investigated ... ..	62
Inspections made ... ..	142
Rooms disinfected ... ..	23

## RATS.

Number destroyed ... ..	29,250
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## NOTICES SERVED.

Public Health Ordinance ... ..	124
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## Municipal By-Laws:

Insanitary Huts, 509, etc. ... ..	37
Cleansing Plots, By-law 499 and 465(f) ... ..	108
Inadequate latrine accommodation, By-law 510 ...	55
Inadequate latrine accommodation for workmen, 518 ...	26
Drainage By-laws ... ..	38
Others, By-laws 495, 513, and 516 ... ..	15
Closing Orders (Insanitary Dwellings By-laws) ... ..	15



## 27. FOOD CONTROL.

## TRADE PREMISES SUBJECT TO SPECIAL CONTROL.

	1932	1933	1934	1935	1936	1937	1938	1939
Aerated water factories ...	4	5	4	5	5	5	4	4
Bakeries ...	11	10	11	12	10	11	11	11
Butchers' shops ...	21	19	13	14	12	13	8	9
Dairies and milk shops ...	26	32	24	22	21	20	17	19
Fishmongers ...	15	11	8	8	8	9	9	7
Laundries and dhobies ...	24	20	19	24	20	24	24	24
Restaurants ...	7	8	6	8	6	9	9	12
Eating houses ...	40	32	29	23	27	27	28	31
Vegetable dealers ...	22	20	16	20	21	21	20	15

These figures do not include stalls or shops in the Municipal Market; they also exclude premises in the native locations where there are 19 butchers' shops, 11 eating houses, 5 vegetable dealers, and 58 miscellaneous where general goods are sold.

Of the 19 dairies and milk shops, eight are cow keepers who retail milk, all being European. The remaining 11 premises are retailing milk depots, two being European and nine being Asian.

No formal samples of milk were taken during the year, but of 1,353 gallons which were inspected, 103 gallons were condemned for various causes as being unfit for sale. It is evident that a certain amount of meat is being brought into the town from outside areas and being sold without having been inspected and passed as fit for consumption. This practice is difficult to control under the present by-laws and it is suggested that the by-laws be amended to give power to take prosecutions under this heading.

However, prosecutions against butchers during 1939 doubtless had a salutary effect and we have reason to believe that at least one of the sources of uninspected meat is no longer used.

## INSPECTIONS TO PREMISES UNDER SPECIAL CONTROL.

	No. of inspections.
Aerated water factories ...	210
Bakeries ...	73
Butchers' shops ...	226
Dairies and milk shops ...	520
Fishmongers ...	99
Laundries and dhobies ...	57
Restaurants ...	28
Eating houses ...	264
Vegetable dealers ...	111
Hotels and boarding houses ...	82
Markets ...	154
Grocers ...	304

## FOOD INSPECTED AND CONDEMNED.

	Inspected. lbs.	Condemned. lbs.
Meat ...	98,606	1,833
Provisions ...	56,332	1,284
Fish ...	15,980	—
Fruit ...	4,820	168
Tinned foods ...	7,938	1,606
Bottled foods ...	5,771	134
Bread ...	912	—
Vegetables ...	4,810	—
Milk ...	1,353 gals.	103 gals.
Mineral waters...	1,551 bots.	32 bots.

## 28. MILK DEPOT.

It was explained in the Report for 1937 that the Council had formulated a scheme for the inspection of all milk coming from unregistered sources. In order to enable this to be carried out a depôt was established and equipped at the Municipal Market. However, as the necessary by-laws have not been approved to date, nothing further has been done in the direction of compulsory examination of milk and the depôt remains idle.

Until such a scheme is in operation, it is very difficult to attempt to control the quality of milk without being accused of discrimination between the communities.

## 29. ABATTOIR.

The total number of animals slaughtered during the year amounted to 77,737, exceeding the total for last year of 62,914 by 14,823.

Work carried out at the Abattoir has increased progressively each year; that this increase is considerable may be judged by comparing the number of animals slaughtered in 1930, namely 41,818 with 77,737, the figure for 1939 representing an increase of about 62%. The increase over last year's figure represents over 23%.

The volume of work has now reached the extent that present accommodation is not sufficient for efficient working and a scheme for extension is being prepared.

The number of oxen slaughtered totalled 12,365, a figure 1,595 higher than last year. The number of grade oxen killed declined from 2,464 to 2,207, whilst the number of native oxen killed increased from 8,306 to 10,158.

514 calves were sent to the Abattoir compared with 465 for the previous year, and the condemnation rate increased from 16.3% to 37.5%. The average quality of these calves was not good.

There was a considerable increase in the number of sheep killed; 14,783 compared with 12,742, and the condemnation rate dropped from 1.3% to 0.7%.

The number of goats killed showed an increase of over 28%, the figures being 46,553 and 36,114 respectively for 1939 and 1938. The condemnation rate of 4.4% was about the same as in 1938.

The number of pigs dealt with also showed an increase, amounting to nearly 25%, the figures being 3,522 and 2,823. The condemnation rate was 1.2% compared with 1.0%.

Tables follow recording the number of animals slaughtered during the year, together with the percentages of condemnations for the types of animals and the causes of condemnation.

The number of oxen condemned for all causes amounted to 2,007 or 16.2% compared with 2,001 or 18.5% during 1938. Of these 2,007 oxen, 284 were grade and 1,723 native. The condemnation rates were 12.8% and 16.9% respectively, compared with 17.5% and 18.8% for last year.

217 grade and 1,546 native oxen were condemned on account of measles; the percentage being 9.8% and 15.2% respectively, compared with 14.9% and 17.2% during 1938.

Of the remainder, 85 oxen were condemned for dropsy, 39 for jaundice, 32 for piroplasmosis, 30 for emaciation, 23 for being fevered, 13 each for extensive bruising and tuberculosis, 6 for septic conditions, and 1 for heartwater.

Two condemnations for East Coast fever were recorded during the year.

Of the 193 calves rejected, 145 were on account of measles, 27 for emaciation, 12 for septic conditions, 4 for jaundice, 3 for being fevered, and 2 for dropsy.



105 sheep were condemned, 38 for lymphadenitis, 24 for emaciation, 21 for being fevered, 9 for jaundice, 7 for bruising, 2 each for pleuro-pneumonia and septic conditions, and 1 each for heartwater and dropsy.

A total of 2,054 goats were rejected, 785 on account of heartwater, 306 for being fevered, 247 for lymphadenitis, 228 for dropsy, 162 for jaundice, 188 for pleuro-pneumonia, 120 for emaciation, 9 for septic conditions, 6 for bruising, and 3 for cancer.

44 of the pigs slaughtered were condemned, 21 for measles, 8 for being fevered, 8 for septic conditions, 4 for bruising, 2 for jaundice, and 1 for tuberculosis.

It should be noted that by far the greater number of measles infections occurred during the latter half of the year. The infection was severe, these pigs coming from native sources.

In order to obviate trouble arising on account of religious susceptibilities, two inspectors are employed for the examination of meat.

The estimated weight of meat condemned amounted to 1,060,985 lbs., an increase of 144,715 lbs. compared with last year.

#### INSPECTIONS.

1939.			Inspected.	Condemned.	Percentage of carcasses condemned.
Oxen—grade	...	2,207		284	12.8
native	...	10,158		1,723	16.9
		————	12,365	————	16.2
Calves	...	...	514	193	37.5
Sheep	...	...	14,783	105	0.7
Goats	...	...	46,553	2,054	4.4
Pigs	...	...	3,522	44	1.2
TOTAL	...	...	77,737	4,403	5.6

#### ORGANS CONDEMNED APART FROM CARCASSES.

Hearts	...	...	5,471
Heads	...	...	4,635
Tongues	...	...	4,651
Kidneys	...	...	9,700
Livers	...	...	33,107
Lungs	...	...	34,709
Spleens	...	...	4,600
Stomachs...	...	...	5,513
Intestines	...	...	4,509
Others	...	...	457
TOTAL	...	...	107,352

#### ESTIMATED TOTAL WEIGHT OF MEAT CONDEMNED.

Beef	...	884,659 lbs.
Veal	...	17,621 lbs.
Mutton	...	22,299 lbs.
Goat	...	122,850 lbs.
Pork	...	13,556 lbs.
TOTAL	...	1,060,985 lbs.



## CONDITIONS NECESSITATING CONDEMNATIONS.

				Oxen.						
				Grade.	Native.	Calves.	Sheep.	Goats.	Pigs.	TOTAL.
Cysticercus	bovis	...		217	1,546	145	—	—	—	1,908
Cysticercus	cellulosae	...		—	—	—	—	—	21	21
Dropsy	...	...		21	64	2	1	228	—	316
Emaciation	...	...		11	19	27	24	120	—	201
East Coast fever	...	...		—	2	—	—	—	—	2
Jaundice	...	...		13	26	4	9	162	2	216
Lymphadenitis	...	...		—	—	—	38	247	—	285
Pleuro-pneumonia	...	...		—	—	—	2	188	—	190
Septicaemia	...	...		—	1	—	—	—	—	1
Septic condition	...	...		1	4	12	2	9	8	36
Tuberculosis	...	...		—	13	—	—	—	1	14
Heartwater	...	...		—	1	—	1	785	—	787
Piroplasmosis	...	...		1	31	—	—	—	—	32
Extensive bruising	...	...		10	3	—	7	6	4	30
Fevered	...	...		10	13	3	21	306	8	361
Cancer	...	...		—	—	—	—	3	—	3
TOTAL				284	1,723	193	105	2,054	44	4,403

## OXEN SLAUGHTERED AND CONDEMNED FOR ALL CAUSES.

Year.	—Grade—				—Native—				—Total—		
	No. killed.	No. cond.	% cond.		No. killed.	No. cond.	% cond.		No. killed.	No. cond.	% cond.
1927	5,634	232	4.1	...	5,178	335	6.4	...	10,812	567	5.2
1928	4,907	290	5.9	...	6,827	480	7.0	...	11,734	770	6.5
1929	4,151	252	6.0	...	7,617	762	10.0	...	11,768	1,014	8.6
1930	4,214	313	7.4	...	7,243	738	10.1	...	11,457	1,051	9.1
1931	4,306	471	10.9	...	9,375	1,318	14.0	...	13,681	1,789	13.0
1932	3,054	363	11.8	...	11,044	1,757	15.9	...	14,098	2,120	15.0
1933	2,924	399	13.6	...	12,968	2,625	20.2	...	15,892	3,024	19.3
1934	4,531	664	14.6	...	10,264	2,230	21.7	...	14,795	2,894	19.5
1935	4,806	682	14.1	...	9,007	2,066	22.9	...	13,813	2,748	19.8
1936	4,422	657	14.8	...	9,444	2,367	25.0	...	13,866	3,024	21.8
1937	4,048	645	15.9	...	6,473	1,599	24.7	...	10,521	2,244	21.3
1938	2,464	433	17.5	...	8,306	1,568	18.8	...	10,770	2,001	18.5
1939	2,207	284	12.8	...	10,158	1,723	16.9	...	12,365	2,007	16.2

## OXEN SLAUGHTERED AND CONDEMNED FOR "MEASLES."

Year.	—Grade—				—Native—				—Total—		
	No. killed.	No. cond.	% cond.		No. killed.	No. cond.	% cond.		No. killed.	No. cond.	% cond.
1927	5,634	—	—	...	5,178	—	—	...	10,812	490	4.5
1928	4,907	—	—	...	6,827	—	—	...	11,734	740	6.3
1929	4,151	—	—	...	7,617	—	—	...	11,768	975	8.2
1930	4,214	277	6.5	...	7,243	683	9.4	...	11,457	960	8.3
1931	4,306	388	9.0	...	9,375	1,227	13.0	...	13,681	1,615	11.8
1932	3,054	321	10.5	...	11,044	1,568	14.1	...	14,098	1,889	13.3
1933	2,924	326	11.1	...	12,968	2,158	16.6	...	15,892	2,484	15.6
1934	4,531	600	13.2	...	10,264	1,820	17.7	...	14,795	2,420	16.3
1935	4,806	495	10.2	...	9,007	1,894	21.0	...	13,813	2,389	17.2
1936	4,422	417	9.4	...	9,444	2,132	22.5	...	13,866	2,549	18.3
1937	4,048	538	13.2	...	6,473	1,462	22.5	...	10,521	2,000	19.0
1938	2,464	368	14.9	...	8,306	1,436	17.2	...	10,770	1,804	16.7
1939	2,207	217	9.8	...	10,158	1,546	15.2	...	12,365	1,763	14.2

### 30. REPORT ON CHILD WELFARE, ANTE-NATAL AND VENEREAL CLINICS, DISPENSARIES, AND HOME VISITS FOR 1939.

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During the year under review the same number of Welfare Centres, three for Africans and one for Indians, was maintained as in previous years. Each Centre is in the charge of the same Health Visitor, so that continuity of personal contact between Health Visitor and the resident families of her location was maintained, which is so important in keeping their confidence in her sympathetic interest in their children and their progress.

The work, as the figures of the clinics showed, was progressing steadily until September, when at the outbreak of war, the authorities advised that as many women and children as possible should return to the reserves, which caused a great falling off of attendances. Towards the end of the year, when it was realised that there was no indication of danger, women and children gradually returned to the locations, but not to the extent to bring the numbers back to normal. Pumwani Location was least affected in this way, because the majority of the natives know no other home and have their permanent residences there. The population of Railway Landies has been further disturbed by the fact that the Railway authorities have been transferring families in the location and the Health Visitors have lost contact with them and are experiencing difficulty in tracing them from one part of the location to another, and sometimes find they have been transferred to some other location altogether.

There has been a steady increase in cleanliness among the mothers and children, and comparatively few attend the Welfare Centres in a dirty condition. Those who do are "casuals"—women who come from the reserves, and stay a few days or weeks only and then return. They seldom remain long enough to absorb knowledge on cleanliness, better diet for their children, or to complete a course of treatment for venereal disease, or other ailment.

Milk was distributed free at all the Welfare Centres to undernourished infants and children, and to expectant and nursing mothers when it was possible to persuade them to drink it. All the children showed improvement in their general condition.

#### PUMWANI WELFARE CENTRE.

Mrs. Gibb continued her work here as Health Visitor, with one ayah and two dressers to assist her.

At the outbreak of war the Centre was equipped as an A.R.P. First Aid Post.

					Clinics held.		Total attendances.		
							1937.	1938.	1939.
Child welfare	...	...	47	...	9,692	...	10,420	...	10,723
Venereal diseases	...	...	52	...	3,988	...	4,558	...	3,545
Dispensary	...	...	...	...	5,935	...	8,820	...	8,600
Visits by Health Visitor	...	...	...	...	1,053	...	2,229	...	2,822
Visits by Native staff	...	...	...	...	3,899	...	3,631	...	3,228

#### VENEREAL DISEASES CLINICS.

This Centre has a larger venereal diseases clinic than any of the other Centres, because Pumwani is the centre of native life in Nairobi. These clinics will probably deal with even larger numbers in the near future, as the



influx of native troops and camps near Nairobi is increasing the trade of the prostitutes. The number of attendances for the year shows a diminution, but the women who came have been much more regular in their attendances. They are interested and anxious to have their blood "clean," that is with a negative report to the Khan test and so persevere with the treatment.

#### MILK DISTRIBUTION.

From September the quantity of milk distributed was reduced because a certain number of children were taken away by their parents to the reserves.

January—September: 75 pints weekly.

Attendances: Women, 87. Children, 5,896. Total, 5,983.

September—December: 45 pints weekly.

Attendances: Women, 55. Children, 1,675. Total, 1,730.

During the year the most prevalent diseases were whooping cough and broncho-pneumonia. During October, November, and December there were many cases of measles. Many babies have been brought back to the location suffering from malaria.

#### KARIAKOR WELFARE CENTRE.

Miss Smith remained in charge until the end of September when she went on overseas leave. Miss Eason took over charge from October 1st.

As pointed out in last year's report, the attendances of mothers and infants at this Centre will remain low until more housing is built in the vicinity. It serves only the Municipal and Government housing since the demolition of Pangani. The numbers showed a further decrease on the exodus of women and children at the outbreak of war, when practically none remained.

In September this Centre was equipped as an A.R.P. First Aid Post.

					Clinics held.		Total attendances.	
							1938.	1939.
Child welfare	...	...	...	51	...	7,996	...	5,707
Venereal diseases	...	...	...	51	...	1,801	...	785
Dispensary	...	...	...	...	...	2,548	...	1,871
Visits by Health Visitor	...	...	...	...	...	1,421	...	756
Visits by Ayah	...	...	...	...	...	2,352	...	1,225

#### VENEREAL DISEASES CLINICS.

Nearly all the women who attend come from outlying districts, most of them having been sent on from the Government Dispensary. The children who do attend from the Kariakor do not live here for any length of time, so no course of injections is completed.

#### MILK DISTRIBUTION.

At the beginning of the year, when Pangani village was completely demolished, the quantity of milk was reduced from 15 pints to 10 pints.

January—March: 63 children and two women received milk.

April—September: 30 children received milk.

In September nearly all the children returned to the reserves and the milk had to be discontinued.

During the year there was very little sickness among the children—chiefly minor ailments: diarrhoea during January and May; measles in February and April—July. Several cases of acute tonsillitis during November.



## RAILWAY LANDIES WELFARE CENTRE.

This Centre has remained in the charge of Miss Pearson, with two ayahs to assist her. By courtesy of the General Manager, K.U.R. & H. a boy has been allowed to continue to assist at the Centre.

					Clinics held.	Total attendances.				
						1937.	1938.	1939.		
Child welfare	...	...	...	51	...	11,799	...	13,040	...	10,769
Ante-natal	...	...	...	51	...	1,664	...	1,778	...	1,483
Venereal diseases	...	...	...	51	...	2,081	...	1,404	...	382
Dispensary	...	...	...		...	10,446	...	8,864	...	5,618
Home visits by Health Visitor					...	1,355	...	1,647	...	2,013
Home visits by ayahs	...	...	...		...	3,348	...	2,961	...	2,388

There were 102 babies born in the Landies during the year and 40 born in Pumwani Hospital.

## VENEREAL DISEASES CLINICS.

The number of women attending have decreased and the majority have left without waiting till their bloods gave a negative Kahn result.

The resident women and children seldom suffer from yaws. The cases treated at the clinics are usually "casual" Kikuyus.

## MILK DISTRIBUTION.

From the beginning of the year until September 15 pints of milk were distributed three times a week. As so many children left the Landies with their parents in September it was decided to reduce the quantity to eight pints.

January—September: 30 children attended regularly.

4 Kikuyu women.

September—December: 24 children attended regularly.

Total: Children, 54. Women, 4.

No Jaluo women could be persuaded to drink milk.

There have been cases of measles, chickenpox, and whooping cough during the year but no epidemic, because the mothers were advised to isolate their children and they co-operated by doing so. The ayahs visited them daily to prevent other children from playing in houses where there was infection.

## K.U.R. AND SHAURI MOYO.

For work in Shauri Moyo and part of the Railway Location the Health Visitor, Miss Smith of Kariakor Centre, and later Miss Eason, made use of the Railway Landies Welfare Centre.

					Clinics held.	Total attendances.			
						1938.*	1939.		
Child welfare	...	...	...	52	...	1,760	...	8,655	
Ante-natal	...	...	...	51	...	114	...	717	
Venereal diseases	...	...	...	50	...	56	...	449	
Dispensary	...	...	...		...	484	...	3,013	
Home visits by Health Visitor					...	334	...	1,369	
Home visits by ayah	...	...	...		...	400	...	2,426	

\* The figures for 1938 are for three months only.

## VENEREAL DISEASES CLINICS.

The majority of the attendances were of "casual" Kikuyus suffering from yaws, who came to the clinic a few times and then returned to the reserve.

MILK DISTRIBUTION.

January—September: 5 pints. 24 children received milk.  
September—December: 4 pints. 16 children received milk.

INDIAN WELFARE CENTRE.

Miss Benjamin has continued to be in charge of this centre with Mrs. Kapila to assist her.

No treatment of illness of any kind or of venereal diseases is undertaken at this Centre. Only trivial complaints are attended to, because child welfare work is essentially “preventive medicine” and not “curative”; in this way child welfare schemes do not interfere with the work of medical practitioners, but invites their co-operation.

						Clinics held.		Total attendances.	
								1938.	1939.
Child welfare	...	...	...	51	...	4,109	...	4,880	
Ante-natal	...	...	...	51	...	1,759	...	1,945	
Dispensary	...	...	...		...	7,021	...	5,086	
Home visits by Health Visitor	...				...	1,389	...	2,448	
Home visits by assistant	...	...			...	760	...	805	

MILK DISTRIBUTION.

Eight children have been receiving milk and one mother. All the children have shown an increase in weight which was most satisfactory.

ANTE-NATAL CASES.

Out of a total of 591 cases, new admissions accounted for 454.

253 of our mothers were confined in the Indian Maternity Home, while 86 had trained midwives in their homes and 48 had untrained dais.

ANTE-NATAL CLINICS AT PUMWANI HOSPITAL.

These clinics have continued to be held at the Lady Grigg Native Maternity Hospital, as in previous years, because of the benefit to the hospital, both in accustoming the women to the hospital and staff, and to the girls under training.

Clinics held.				Total attendances.	
				1938.	1939.
51	...	2,057	...	2,051	

The number of attendances fell markedly during September and the numbers of the last four months has not returned to the monthly average existing before the outbreak of war.

Dr. Hartley, as well as her duties with the Health Department, has continued to attend the Lady Grigg Native Maternity Hospital in an honorary capacity by kind permission of the Municipal Council and has performed the following operations:—

Laparatomies	...	...	...	...	...	2
Caesarean sections	...	...	...	...	...	9
Induction of labour	...	...	...	...	...	3
Podalic versions	...	...	...	...	...	4
Forceps deliveries	...	...	...	...	...	6
Craniotomies	...	...	...	...	...	9
Application of Willets forceps for placenta praevia						2
Curettages	...	...	...	...	...	10
Perineum repair	...	...	...	...	...	1

## CHILD WELFARE CLINICS.

	Pumwani.	Kariakor.	Railway Landies.	Shauri Moyo and K.U.R.	Indian.	Total.
Clinics ...	47	51	51	52	51	252
Attendances ...	10,723	5,707	10,769	8,655	4,880	40,734

## ANTE-NATAL CLINICS.

	Pumwani Hospital.	Railway Landies.	Shauri Moyo and K.U.R.	Indian.	Total.
Clinics ...	51	51	51	51	204
Attendances ...	2,051	1,483	717	1,945	6,196

## DISPENSARIES.

	Pumwani.	Kariakor.	Railway Landies.	Shauri Moyo and K.U.R.	Indian.	Total.
Women ...	2,700	524	773	675	686	5,358
Children ...	4,950	1,335	4,845	2,338	4,400	17,868
Men ...	950	12	—	—	—	962
Total ...	8,600	1,871	5,618	3,013	5,086	24,188

## VENEREAL DISEASES CLINICS.

	Pumwani.	Kariakor.	Railway Landies.	Shauri Moyo and K.U.R.	Total.
Clinics ...	52	51	51	50	204
Attendances ...	3,545	785	382	449	5,161

## HOME VISITS.

	Pumwani.	Kariakor.	Railway Landies.	Shauri Moyo and K.U.R.	Indian.	Total.
Health Visitor ...	2,822	756	2,013	1,369	2,448	9,408
Staff ...	3,228	1,225	2,388	2,426	805	10,072

## COMPARISON OF ATTENDANCES AND VISITS.

	1932.	1933.	1934.	1935.	1936.	1937.	1938.	1939.
Child Welfare Clinics ...	7,923	11,448	11,698	11,385	25,190	36,824	37,325	40,734
Venereal Diseases Clinics .	4,219	3,432	3,967	6,277	8,703	8,363	7,819	5,161
Dispensaries ...	23,316	19,861	29,066	36,258	38,058	26,604	27,737	24,188
Ante-natal Clinics ...	1,626	1,958	2,198	2,711	3,955	4,994	5,744	6,196
Total attendances ...	37,084	36,699	46,929	56,631	75,906	76,785	78,625	77,475
Home visits ...	3,646	4,373	7,738	12,146	12,532	15,812	17,213	19,480



### 31. STAFF.

The details of the staff working in the Public Health Department during the year are given hereunder:—

#### MEDICAL OFFICER OF HEALTH.

Dr. H. W. Tilling was absent on overseas leave from March, the work in his absence being carried out by Dr. C. W. Howe.

#### LADY MEDICAL OFFICER.

Dr. E. N. Hartley, the Medical Officer in charge Child Welfare Services, continued to carry out her duties throughout the year.

#### CHIEF SANITARY INSPECTOR.

This post is still vacant, not having been filled since it was vacated by the seconded Government official in May, 1931.

It has been repeatedly emphasised that the non-filling of this post is acting detrimentally to the efficiency of the department. As the work of the department is increasing rapidly, the filling of the post is considered essential.

Mr. F. R. Forster has carried out some of the duties.

#### SANITARY INSPECTORS.

All the sanitary inspectors, namely:—

Mr. R. C. Forster,  
Mr. D. Mackintosh,  
Mr. S. W. White,  
Mr. P. Cairns,  
Mr. E. H. Scrivener

carried out their duties throughout the year.

#### MEAT AND FOOD INSPECTOR.

Mr. A. A. Watts carried out his duties throughout the year assisted at the abattoir in the mornings by Mr. E. H. Scrivener.

#### ANTI-MALARIAL OFFICER.

Mr. G. R. C. van Someren continued his duties throughout the year.

#### SANITARY OVERSEER.

Mr. T. Bagnall continued his duties throughout the year.

#### CLERK.

Miss W. W. Harris left on overseas leave at the end of June, Mrs. Noble acting in her capacity during her absence.

#### HEALTH VISITORS.

Miss B. B. Pearson and Mrs. A. Gibb continued their duties throughout the year.

Miss J. Smith left on overseas leave at the end of September, her duties being carried out by Miss C. E. Eason during her absence.

Miss P. Benjamin assisted by Mrs. S. D. Kapila continued her duties at the Indian Clinic during the year.

#### NATIVE STAFF.

The office staff consisted of a head boy and two messengers.

Six ayahs and one male dresser are attached to the various clinics.

The number of boys employed on outside work comprises a motor driver, ten oiling boys, eight searchers, and one boy to assist in food inspection.

Two gangs of twenty and two gangs of twelve boys on the pay roll of the Engineering Department are employed on anti-malarial work, river clearing, road drain cleaning and plot clearing respectively.

Administrative control is exercised over the staff of the abattoir, namely a European Superintendent, an Asian clerk, two Mohammedan killers, and 49 native staff.

Control is also exercised over the two Indians employed in connection with native burials and the public mortuary as well as the native staff at the Native Cemetery.

#### Personnel of Public Health Department during 1939.

<i>Appointed.</i>		<i>From</i>	<i>To</i>
	MEDICAL OFFICER OF HEALTH.		
11/4/30	Dr. H. W. Tilling ... ..	1/1/39	31/12/39
	LADY MEDICAL OFFICER.		
1/2/37	Dr. E. N. Hartley ... ..	1/1/39	31/12/39
	CHIEF SANITARY INSPECTOR.		
	Vacancy.		
	SANITARY INSPECTORS.		
4/8/29	Mr. R. C. Forster ... ..	1/1/39	31/12/39
15/9/31	Mr. D. Mackintosh ... ..	1/1/39	31/12/39
26/8/33	Mr. S. W. White ... ..	1/1/39	31/12/39
1/1/36	Mr. P. Cairns ... ..	1/1/39	31/12/39
1/9/38	Mr. E. H. Scrivener ... ..	1/1/39	31/12/39
	INSPECTOR MEAT AND FOODS.		
1/1/29	Mr. A. A. Watts ... ..	1/1/39	31/12/39
	ANTI-MALARIA OFFICER.		
1/2/37	Mr. G. R. C. van Someren ... ..	1/1/39	31/12/39
	SANITARY OVERSEER.		
1/6/29	Mr. T. Bagnall ... ..	1/1/39	31/12/39
	HEALTH VISITORS.		
1/1/36	Miss B. B. Pearson ... ..	1/1/39	31/12/39
1/1/36	Miss J. Smith ... ..	1/1/39	31/12/39
1/6/36	Mrs. A. Gibb ... ..	1/1/39	31/12/39
1/9/37	Miss P. Benjamin ... ..	1/1/39	31/12/39
	CLERK.		
1/7/35	Miss W. W. Harris ... ..	1/1/39	31/12/39
	NATIVE STAFF.		
	Motor driver ... ..	1	
	Head boy ... ..	1	
	Messengers ... ..	2	
	Dresser and Ayahs ... ..	6	
	Rat boys ... ..	6	
	Oiling boys ... ..	10	
	Searchers ... ..	8	
	Food inspection ... ..	1	
	Anti-malarial gang ... ..	20	
	Road drain gang ... ..	12	
	Plot clearing gang ... ..	12	
	River clearing gang ... ..	20	

### 32. EXPENDITURE.

The expenditure of the Public Health Department for the year amounted to £12,570 of which the Government by grants made on account of public health contributed £6,000, leaving an amount of £6,570 to be borne by the Council.

Details of the expenditure by the Public Health Department during the year are given under. The figures in brackets refer to expenditure during 1938.

ADMINISTRATION.						£	£	£	£
Salaries: M.O.H., Locum tenens, and Sanitary Inspectors ... ..						5,488	(4,310)		
Clerk and relief ... ..						410	( 240)		
Boys' wages, etc. ... ..						82	( 89)		
Locomotion allowances ... ..						191	( 185)		
Passages ... ..						254	( 109)		
Provident Fund ... ..						424	( 395)		
Printing, stationery, telephone ... ..						151	( 146)		
Sundry expenses ... ..						11	( 30)		
								7,311	(5,804)
INFECTIOUS DISEASES PREVENTION.									
Hospital fees ... ..						441	( 507)		
Notification fees ... ..						49	( 51)		
Overseer's salary ... ..						350	( 350)		
Native wages, etc. ... ..						299	( 252)		
Oil and stores ... ..						556	( 500)		
Upkeep of lorry ... ..						80	( 88)		
Fumigation ... ..						30			
								1,805	(1,760)
MALARIA CONTROL.									
Malaria Officer's salary ... ..						370	( 368)		
Native wages, etc. ... ..						106	( 66)		
Laboratory expenses ... ..						14	( 24)		
								490	( 490)
FOOD CONTROL.									
Miscellaneous expenses ... ..						17	( 27)		
								17	( 27)
AUXILIARY HEALTH SERVICES.									
Salaries, L.M.O., and Health Visitors ... ..						2,083	(1,915)		
Medical stores ... ..						346	( 436)		
Infant food ... ..						59	( 75)		
Native ayahs and dressers ... ..						150	( 206)		
Maintenance of clinics ... ..						79	( 84)		
Stationery, telephone, sundries ... ..						29	( 25)		
Passages ... ..						56	( 26)		
Provident Fund ... ..						145	( 134)		
								2,947	(2,834)
Total ... ..								12,570	(10,883)
Less Government contribution ... ..								6,000	( 5,177)
Amount contributed by Council ... ..								6,570	( 5,238)







